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ORIGINAL ARTICLE

Structure of Care Managers' Approaches to and Awareness of "Nutritional Improvement" for Care-dependent Older People

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ABSTRACT

To structure care managers' approaches (upright) to and awareness (oblique) of nutritional improvement for care-dependent older people, semi-structured interviews were conducted with 12 care managers in Japan. Concerning nutritional improvement for care-dependent older people, the care managers, managing older people with [mental and physical dysfunctions due to a decline in the nutritional status] and consequently [realizing the association between their nutritional status and mental and physical functions] developed dilemmas, while perceiving [distress due to problems care managers cannot resolve alone] as a result of [insufficient nutrition education through care manager training]. Although they perceived [distress due to problems care managers cannot resolve alone], they continued to adopt approaches, such as [devising measures for nutritional management from the perspective of a care manager] and [assessing nutritional status based on the living conditions and body weight]. However, the results also revealed their dilemmas due to [difficulty in accurately assessing nutritional status], suggesting [the importance of performing nutritional management through collaboration with other professionals and services].

＜Key-words＞
structure, care manager, approaches to, awareness, nutritional improvement

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I. Introduction

Malnutrition is a major factor for older people requiring care. The revision of the Long-Term Care Insurance Act in 2006 included care prevention and preventing the level of care need from becoming higher, and nutrition management was introduced as the mainstay of the revision. However, according to the "Research on Comprehensive Evaluation and Analysis regarding the Effects of Care Prevention Programs" in 2008, among some older people or those requiring support who may continue requiring care after the initiation of care prevention programs, individuals requiring nutrition improvement account for approximately 30% of older people (Tsuji, Ueda, Okubo, et al., 2009). In addition, according to the "Survey Report about Understanding the Eating Condition and Nutritional conditions of Patients Receiving Home-Based Care" in 2012, approximately 30% of older people receiving home-based care suffer malnutrition based on MNA-SF (Mini Nutritional Assessment-Short Form) and BMI values (Body Mass Index) (National Center for Geriatrics and Gerontology, 2012). Thus, as issues regarding: 1) older people starting to require care and 2) the level of care need becoming higher, malnutrition has yet to be resolved.

This may be attributable to the absence of systems whereby identifying the risk of malnutrition among care service users (analysis) leads to care approaches that facilitate nutrition improvement (problem-solving). Regarding the identification of such a risk, in 2014, researchers conducted an awareness survey concerning the nutritional conditions of older people requiring care involving nursing care insurance service workers, and revealed that both home-based and facility workers were hardly aware of BMI values and Alb levels, which are indices of nutritional conditions (Fujio & Kodaira, 2014). These results suggested that information-gathering and -sharing for identifying the risk of malnutrition were not standardized. In 2015, a survey was conducted to assess the nutritional conditions and mental/physical function of facility service users and at-home older people requiring care who utilized nursing care insurance services. As a result, correlations were noted between Alb levels and the following 4 factors: the BMI values, dietary habits, dietary intake, and locomotion ability. This indicated that these 4 factors may be predictors of Alb levels (Fujio, Ogawa, Inoue, et al., 2016). In 2016, a survey was conducted to assess the nutritional conditions and mental/physical function of older housing facility service users, which were not covered by nursing care insurance. In another survey conducted in the same year, we focused on the contents of information collected when creating care plans for nutrition improvement in long-term care insurance services. Alb levels were the least frequently collected content of information, followed by BMI and nutritional index values. The frequency of collecting nutritional index values was correlated with the number of service users, type of service, type of profession (basic qualifications), and experience of receiving nutrition education. The results indicated the necessity of considering the type of service, type of profession, and experience of receiving nutrition education as a challenge in creating care plans to improve older people's nutritional conditions (Fujio, Kurokawa, Furukawa, et al., 2018).

In a previous study examining the status of using information and communication technology (ICT) in the process of creating care plans, the use rate was generally high, but it was also suggested that ICT did not function as a problem-solving tool to link assessment and care plans and share the latter with service providers (Fujio, Enomoto, Furukawa, et al., 2019).

Therefore, the present study aimed to clarify the structure of care managers' approaches to and awareness of nutritional improvement for care-dependent older people. The clarification of approaches adopted by and awareness among care managers, who influence nutritional improvement for care-dependent older people, may provide a basis for standardizing care approaches to improve these people's nutritional status.

II. Subjects and Methods

1. Study and Procedures

1) Study Design

Qualitative inductive study design (Interview survey semi-structured interview method)

2) Study Period

Between October 1, 2017, and March 31, 2018

3) Subjects

Care managers providing nursing-care insurance services

4) Study Items

Basic attributes: age, sex, type of profession, years of experience, number of caseworks.

Interview method: An about 30-minute semi-structured interview session using an interview guide was held for each care manager.

Study items: The following questions were presented during each session: 1) Do you collect information regarding Alb levels and BMI values as nutritional indices for the creation of care plans?, 2) If you answered "No" for 1), how do you assess each user's nutritional status?, 3) If you answered "Yes" for 1), what institutions/types of profession do you collect such information from?, 4) Do you exchange information regarding the nutritional status with service providers?, 5) If you answered "Yes" for 4), what measures do you adopt for such an exchange? Please describe them in detail, 6) If you answered "No" for 4), what is the reason for not exchanging?, 7) Have you ever encountered cases where the user's level of mental and physical independence decreased due to a worsened nutritional status? If you have, please describe these cases in detail. 8) What institutions/types of profession do you consult with when users' levels of mental and physical independence decrease?, 9) Do you think there is an association between users' levels of mental and physical independence and nutritional status? If you answered "Yes"/"No", please describe the reason for answering so, 10) Have you ever received education regarding the relationship between care dependency/its progression and nutritional improvement through training or other activities? If you have, please describe the details of such education, and 11) Please let us know your thoughts on nutritional improvement for care-dependent older people in a free-description style.

5) Ethical Considerations

This study was conducted with the approval of the Ethics Committee of the Faculty of Health Science and Nursing, Juntendo University (approval number: 29-07). The study facilities and subjects were previously provided with written and oral explanations of the study objective, methods, voluntary cooperation, participants' right to withdraw at any time, and measures to ensure anonymity to obtain their consent.

2. Data Collection

Candidate facilities were selected using the opportunistic sampling method, and 6 home care support facilities located in the areas where the principal investigator and co-investigator were living were involved, asking their managers to introduce 1 care manager certified as a medical professional and 1 as a welfare professional.

3. Data Analysis

The interview data were organized as narrative records, which were carefully read and divided into minimum paragraphs with semantic contents as units for analysis. These units were encoded, focusing on care managers' approaches to and awareness of nutritional improvement, and classified into categories based on similarities with enhanced abstractness after careful deliberation on the data and codes to determine the characteristics and names of these categories. To enhance their validity, repeated discussions were held between the principal investigator and co-investigator. Additionally, word frequency analysis, dependency analysis, and correspondence analysis based on bubble charts were performed using Text Mining Studio Ver. 6.1 to confirm the validity of these categories by examining the relationships among the categories and between them and words. The relationships among the categories were further examined for structuring by examining similarities and differences among them.

III. Results

1. Basic Attributes (Table 1)

The interviewees were 12 care managers belonging to 6 home care support facilities with the following basic qualifications: nurse: 4, pharmacist: 1, registered dietician: 1, care worker: 5, and grade-2 helper: 1. There were 4 (33.3%) males and 8 (66.7%) females in their thirties to sixties, and those in their fifties were the largest age group. The mean length of care manager experience was 9.67±4.73 years, ranging from 3 to 17 years. The mean number of care plans created was 34.08±8.68, ranging from 13 to 48. The mean duration of an interview session was 19±6.53 minutes, ranging from 10 to 31 minutes.

<Table 1> Basic attributes

	Type of profession	Sex	Age	Interview time (minutes)	Years of experience (years)	Number of caseworks (case)
1	Nurse	Female	50s	16	6	30
2	Nurse	Female	60s	15	15	34
3	Nurse	Female	60s	10	9	13
4	Pharmacist	Female	50s	12	15	32
5	Nurse	Male	50s	17	17	39
6	Nutritionist	Female	40s	23	6	48
7	Care worker	Female	40s	18	4	30
8	Care worker	Female	50s	19	9	35
9	Care worker	Male	40s	17	8	30
10	Care worker	Male	40s	31	15	40
11	Care worker	Female	50s	31	9	42
12	Care worker	Male	30s	19	3	36
	Ave.		50s	19 ± 6.52	9.66 ± 4.73	34.08 ± 8.62

2. Categorization of the interview data (Table 2)

The interview data were classified into 326 codes ({ }), 33 sub-categories (< >), and 8 categories ([ ]). In the following paragraphs, categories/sub-categories are listed from those with a larger number of codes.

[The importance of performing nutritional management through collaboration with other professionals and services]

{Confirming day service users' dietary intakes and changes in them} and {collecting information to identify marked changes in the body weight most frequently from day services} were classified into <performing nutritional management through collaboration

with day services>. {Helper intervention as part of home-visit care enabling users to take 3 meals a day} and {confirmation and consultation with care managers dispatched at the request of helper service facilities} were classified into <performing nutritional management through collaboration with helpers>. {Visiting nurses who are the easiest to collaborate with} and {the ease of collecting information regarding blood Alb and glucose levels from hospitals providing home-visit nursing services} were classified into <performing nutritional management through collaboration with visiting nurses>. {Creating a team to support users and resolve their problems care managers cannot resolve alone} and {relying on service providers' specialized perspectives} were classified into <creating a team for collaboration>. {Observing users, including their family relationships, through teamwork} and {asking users losing body weight or their families about the former's conditions} were classified into <performing nutritional management with cooperation from users and their families>. {Collecting opinions from attending doctors} and {active contact from home care doctors} were classified into <performing nutritional management through collaboration with attending doctors>. {Collecting information from short stay services} and {Confirming the dietary status recorded using check sheets in short stay services} were classified into <performing nutritional management through collaboration with those engaged in short stay services>. These sub-categories were finally summarized into **[the importance of performing nutritional management through collaboration with other professionals and services]**, consisting of 76 codes, which was the largest number.

[Mental and physical dysfunctions due to a decline in the nutritional status]

{A loss of motivation to eat due to eating alone day after day} and {significant differences in the dietary pattern and nutritional status between older people living with other family members and those living alone} were classified into <reduced dietary intake due to the influences of a solitary life and living environment>. {An increased incidence of falls possibly associated with insufficient nutrition} and {the development of dementia symptoms after becoming bedridden due to a worsened nutritional status} were classified into <declined functioning due to a decline in the nutritional status>. {The necessity of admission to a care facility or hospital due to a decline in the nutritional status} and {difficulty in maintaining a desired home life due to reduced dietary intake} were classified into <difficulty in leading a desired life due to a decline in the nutritional status>. {An insufficient understanding of malnutrition among other family members} and {giving up trying to eat due to a loss of appetite in many cases} were classified into <insufficient nutrition resulting from users' and their families' insufficient understanding>. {Reduced dietary intake due to swallowing dysfunction} and {negative attitudes resulting in poor eating habits} were classified into <insufficient nutrition due to mental/physical dysfunction or a disease>. {Directly influencing users' levels of independence and caregiving burdens} and {difficulty in continuing to use day services} were classified into <increased caregiving burdens due to a decline in the nutritional

status>. These sub-categories were finally summarized into **[mental and physical dysfunctions due to a decline in the nutritional status]**, consisting of 45 codes.

[Assessing the nutritional status based on the living conditions and body weight]

{Asking about activities performed each day to assess the nutritional status, as assessment based only on diets is insufficient} and {observing kitchens and refrigerators to clarify cooking habits}, and {identifying the places each user goes for shopping and asking about his/her status} were classified into <asking about activities performed each day and living conditions to assess the nutritional status>. {Directly observing users have meals in some cases} and {confirming eating styles as part of assessment in all cases} were classified into <assessing the nutritional status based on dietary intake>. {The necessity of observation based on the body weight}, {measuring the body weight of users with a loss of appetite} were classified into <assessing the nutritional status based on the body weight>. These sub-categories were finally summarized into **[assessing the nutritional status based on the living conditions and body weight]**, consisting of 44 codes.

[Realizing the association between the nutritional status and mental and physical functions]

{Considering diets as a source of life}, {realizing the strong demand for nutritional management}, and {becoming aware of the importance of nutritional management through experience} were classified into <placing importance on nutrition>. {A rapid decline in physical functions due to insufficient nutrition} and {the rapid development of a bedridden condition after fracture and pressure ulcers due to a poor nutritional status} were classified into <declines in mental and physical functions due to a poor nutritional status>. {Perceiving the marked influence of the nutritional status on older people's independence} and {clearly perceiving the physical and mental influences of the nutritional status} were classified into <perceiving the association between users' nutritional status and mental/physical independence>. These sub-categories were finally summarized into **[realizing the association between nutritional status and mental and physical functions]**, consisting of 43 codes.

[Devising measures for nutritional management from the perspective of a care manager]

{Considering physical fitness and environmental factors to promote dietary intake} and {improving the nutritional balance while considering users' food preferences} were classified into <devising feasible measures as a care manager>. {Anticipating possible situations due to missing appropriate timings} and {intervening with the minimum possible burden on families} were classified into <intervening without missing the timing>. {Incorporating the nutritional status into care plans and continuously observing it when it is shown to be poor on assessment} and {the ease of collecting information regarding the nutritional status from care providers after incorporating it into care plans} were classified into <incorporating the nutritional status into care plans and monitoring>. These sub-categories were finally summarized into **[devising measures for nutritional management from the perspective of a care manager]**, consisting of 36 codes.

[Distress due to problems care managers cannot resolve alone]

{A lack of expertise} and {the necessity of new social resources for nutritional improvement} were classified into <seeking support from other professionals>. {Difficulty in changing users' eating habits at the age of 80 or 90, as care management is based on their previous diets} and {the uncertainty of adherence to the advised dietary requirements} were classified into <limitations of care management>. {Unestablished problem-solving processes} and {having provided similar guidance for problem-solving over the last 10 years} were classified into <insufficient knowledge of methodologies for nutritional improvement>. {Not perceiving the importance of nutritional management} and {considering nutritional management as out of the scope of care manager services despite a high demand for it} were classified into <care managers' poor perception of the necessity of nutritional management>. These sub-categories were finally summarized into **[distress due to problems care managers cannot resolve alone]**, consisting of 35 codes.

[Insufficient nutrition education through care manager training]

{Insufficient opportunities to learn about nutrition despite the availability of various practical training seminars for care managers} and {care manager training not addressing care management for people with malnutrition} were classified into <having never received nutrition-related education>. {Having participated in training seminars held by medical professionals, such as registered dieticians and nurses} and {having learned about oral exercise and oral care through training seminars held by visiting dentists} were classified into <having received nutrition-related education through training seminars not targeting care managers>. {Desiring to participate in training for nutritional improvement} was classified into <desiring to participate in care manager training regarding nutrition>. These sub-categories were finally summarized into **[insufficient nutrition education through care manager training]**, consisting of 25 codes.

[Difficulty in accurately assessing the nutritional status]

{Difficulty in asking further questions to family members who state that the patient is sufficiently eating} and {the necessity of paying attention to possible weight loss even when other family members state that the patient is sufficiently eating} were classified into <difficulty in assessing the nutritional status based only on information from families>. {Difficulty in clarifying whether the user is refusing to eat, or his/her physical condition does not allow eating} and {difficulty in clarifying the types of food consumed and level of their consumption in the case of dementia} were classified into <difficulty in assessing users' nutritional status based only on their conditions>. {Difficulty in collecting information regarding Alb levels from attending doctors} and {hesitating to directly make telephone calls to doctors from a care manager} were classified into <difficulty in confirming the status by inquiring of attending doctors>. {Difficulty in clarifying Alb levels} and {perceiving difficulty in collecting truly objective information} were classified into <difficulty in clarifying Alb levels and evaluating other parameter

values>. These sub-categories were finally summarized into **[difficulty in accurately assessing the nutritional status]**, consisting of 22 codes. Table 2 lists all categories and sub-categories.

<Table 2> Categorize interview results (n=326)

Categories	Sub-categories	Codes
The importance of performing nutritional management through collaboration with other professionals and services (76)	Performing nutritional management through collaboration with day services	19
	Performing nutritional management through collaboration with helpers	19
	Performing nutritional management through collaboration with visiting nurses	13
	Creating a team for collaboration	10
	Performing nutritional management with cooperation from users and their families	8
	Performing nutritional management through collaboration with attending doctors	5
	Performing nutritional management through collaboration with those engaged in short stay services	2
Mental and physical dysfunctions due to a decline in the nutritional status (45)	Reduced dietary intake due to the influences of a solitary life and living environment	15
	Declined functioning due to a decline in nutritional status	9
	Difficulty in leading a desired life due to a decline in nutritional status	6
	Insufficient nutrition resulting from users' and their families' insufficient understanding	6
	Insufficient nutrition due to mental/physical dysfunction or a disease	6
	Increased caregiving burdens due to a decline in nutritional status	3
Assessing the nutritional status based on the living conditions and body weight (44)	Asking about activities performed each day and living conditions to assess the nutritional status	17
	Assessing the nutritional status based on dietary intake	15
	Assessing the nutritional status based on body weight	12
Realizing the association between the nutritional status and mental and physical functions (43)	Placing importance on nutrition	23
	Declines in mental and physical functions due to a poor nutritional status	11
	Perceiving the association between users' nutritional status and mental/physical independence	9
Devising measures for nutritional management from the perspective of a care manager (36)	Devising feasible measures as a care manager	16
	Intervening without missing the timing	10
	Incorporating the nutritional status into care plans and monitoring	10
Distress due to problems care managers cannot resolve alone (35)	Seeking support from other professionals	16
	Limitations of care management	12
	Insufficient knowledge of methodologies for nutritional improvement	4
	Care managers' poor perception of the necessity of nutritional management	3
Insufficient nutrition education through care manager training (25)	Having never received nutrition-related education	19
	Having received nutrition-related education through training seminars not targeting care managers	5
	Desiring to participate in care manager training regarding nutrition	1
Difficulty in accurately assessing nutritional status (22)	Difficulty in assessing the nutritional status based only on information from families	8
	Difficulty in assessing users' nutritional status based only on their condition	6
	Difficulty in confirming the status by inquiring of attending doctors	4
	Difficulty in clarifying Alb levels and evaluating other parameter values	4

3. Analysis of the relationships among the categories and between them and frequent words (Figure 1)

The care managers' narratives were analyzed using Text Mining Studio Ver. 6.1 to examine the relationships among the categories and between them and relevant words. First, each word (morpheme)'s frequency of appearing was confirmed. The following words ranked among the top 20 through word frequency analysis: "eat", "meal", "ask", "nutrition", "body weight", "care manager", "family", "eat + not", "day services", "nutritional status", "create", "confirm", "observe", "take/collect", "intervene", "very", "many", "the user", "helper", "independence", and "information". These frequent words were included in fragmentated codes.

Subsequently, dependency analysis was performed to confirm morpheme-morpheme syntactical relationships. The 20 most frequent relationships were as follows: [independence - relationships], [care manager -training], [connections - create], [nutrients - take in + not], [body weight - measure], [3 meals - diet], [lunch - take], [care manager - planning], [day services - ask], [helper - collaborate], [helper - intervene], [opinion - ask], [nutrients - take in], [nutritional status - poor], [family - confirm], [family - eat], [relationships - create], [face - observe + can], [difficulty - perceive]. These words were contained in the relevant codes or sub-categories and categories created from them.

Furthermore, the levels of correlation among the created categories and between them and the frequent words were confirmed using bubble charts for correspondence analysis. These charts examine correlations based on the distances between mapped attributes and words. In the present study, analysis was performed, with the categories created from the interview data replacing attributes. On examining the relationships among the categories, **[assessing the nutritional status based on the living conditions and body weight]** was very close to and the most strongly correlated with the largest category: **[the importance of performing nutritional management through collaboration with other professionals and services]**. **[Difficulty in accurately assessing the nutritional status]** was the second closest to it, followed by **[mental and physical dysfunctions due to a decline in the nutritional status]** and then **[devising measures for nutritional management from the perspective of a care manager]**. In contrast, **[insufficient nutrition education through care manager training]** was distant, but this category was close to and strongly correlated with **[distress due to problems care managers cannot resolve alone]**. **[Devising measures for nutritional management from the perspective of a care manager]** and **[realizing the association between nutritional status and mental and physical functions]** were close to and strongly correlated with **[distress due to problems care managers cannot resolve alone]**.

As for the relationships between the categories and frequent words, **[the importance of performing nutritional management through collaboration with other professionals and services]** was very close to and strongly correlated with "day services", "create", "information", "confirm", and "helper". These words were contained in the codes constituting **[the importance of performing nutritional management through collaboration with other professionals and services]**, including: {collecting information to identify marked changes in the body weight most frequently from day services}, {helper intervention as part of home-visit care enabling users to take 3 meals a day}, {creating a team to support users and resolve their problems care managers cannot resolve alone}, and {asking users losing body weight or their families about the former's conditions}.

[Assessing the nutritional status based on the living conditions and body weight] was very close to and strongly correlated with "body weight", "observe", and "ask". These words were contained in the codes constituting **[assessing the nutritional status based on the living conditions and body weight]**, including: {the necessity of observation based on the body weight} and {asking about activities performed each day to assess the nutritional status, as assessment based only on diet is insufficient}.

[Difficulty in accurately assessing the nutritional status] was close to and strongly correlated with "the user" and "family" and "collect" and "eat". These words were contained in the codes constituting **[difficulty in accurately assessing the nutritional status]**, including: {difficulty in clarifying whether the user is refusing to eat, or his/her physical condition does not allow eating}, {difficulty in asking further questions to family members who state that the patient is sufficiently eating}, and {perceiving difficulty in collecting truly objective information}.

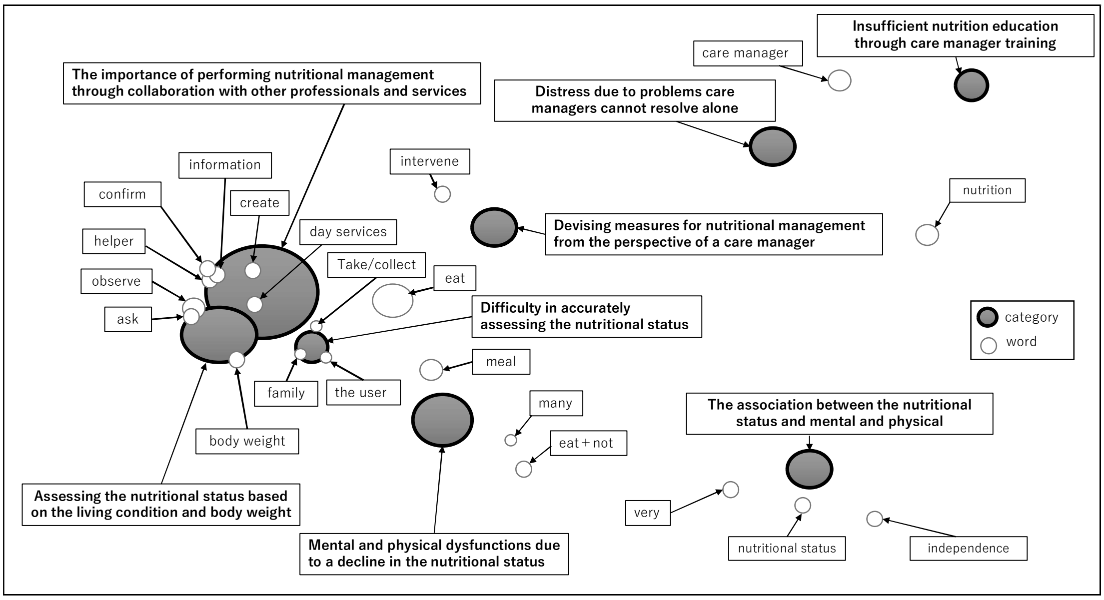
[Mental and physical dysfunctions due to a decline in the nutritional status] was close to and strongly correlated with "eat + not", "many", and "meals". These words were contained in the codes constituting **[mental and physical dysfunctions due to a decline in the nutritional status]**, including: {a loss of motivation to eat due to eating alone day after day}, {giving up trying to eat due to a loss of appetite in many cases}, and {reduced dietary intake due to swallowing dysfunction}.

[Devising measures for nutritional management from the perspective of a care manager] was close to and strongly correlated with "intervene". This word was contained in the codes constituting **[devising measures for nutritional management from the perspective of a care manager]**, including: {intervening with the minimum possible burden on families} and {incorporating the nutritional status into care plans and continuously observing it when it is shown to be poor on assessment}.

"Care manager" and "nutrition" were placed between **[insufficient nutrition education through care manager training]** and **[distress due to problems care managers cannot resolve alone]**, revealing strong correlations. These words were contained in the code constituting **[insufficient nutrition education through care manager training]**, including {care manager training not addressing care management for people with malnutrition}, and that constituting **[distress due to problems care managers cannot resolve alone]**, including {considering nutritional management as out of the scope of care manager services despite a high demand for it}.

[Realizing the association between nutritional status and mental and physical

functions] was close to and strongly correlated with “independence”, “nutritional status”, and “very”. These words were contained in the codes constituting, **[realizing the association between the nutritional status and mental and physical functions]**, including: {perceiving the marked influence of the nutritional status on older people’s independence} and {the rapid development of a bedridden condition after fracture and pressure ulcers due to a poor nutritional status}. Figure 1 shows the results of correspondence analysis using bubble charts.

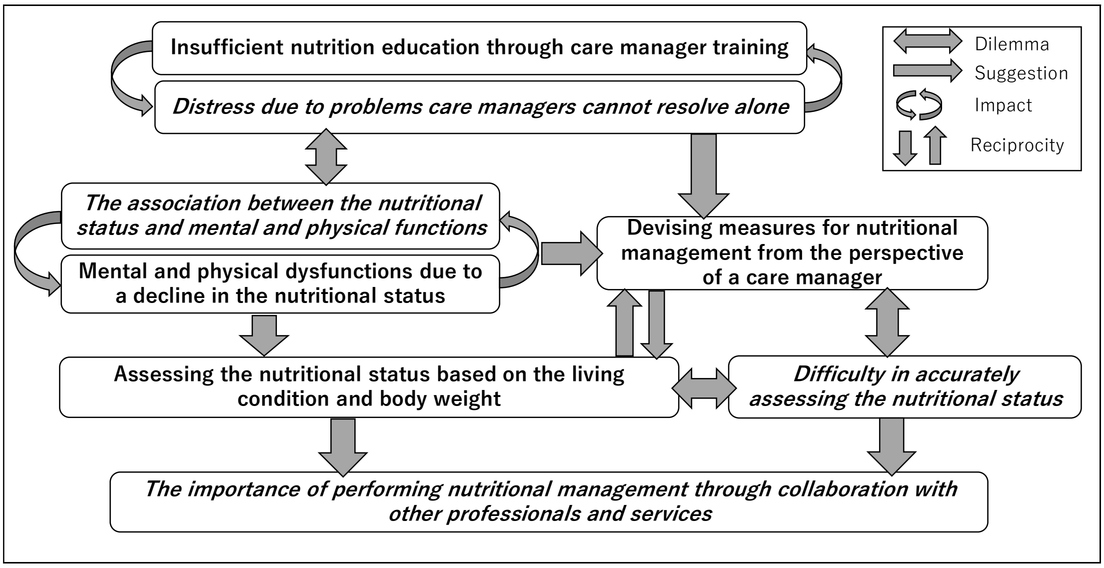


<Figure 1> Correspondence bubble analysis results between categories and frequent words

4. Structuring of care managers’ approaches to and awareness of nutritional improvement for care-dependent older people (Figure 2)

Based on the created categories, care managers’ approaches to and awareness of nutritional improvement for care-dependent older people were structured. In the following paragraphs, approach- and awareness-related categories are shown in upright and oblique letters, respectively. Concerning nutritional improvement for care-dependent older people, the care managers managing older people with **[mental and physical dysfunctions due to a decline in the nutritional status]** and consequently ***[realizing the association between nutritional status and mental and physical functions]*** developed dilemmas, while perceiving ***[distress due to problems care managers cannot resolve alone]*** as a result of **[insufficient nutrition education through care manager training]**. Although they perceived ***[distress due to problems care managers cannot resolve alone]***, they continued to adopt approaches, such as **[devising measures for nutritional management from the perspective of a care manager]** and **[assessing the nutritional**

status based on the living conditions and body weight]. However, the results also revealed their dilemmas due to *[difficulty in accurately assessing the nutritional status]*, suggesting *[the importance of performing nutritional management through collaboration with other professionals and services]*. Figure 2 illustrates the structure of care managers' approaches to and awareness of nutritional improvement for care-dependent older people.



<Figure 2> Structure of the care manager's approaches to and awareness of "nutritional improvement" for the older people

IV. Discussion

Among the 12 care managers interviewed, there were 6 medical and 6 welfare professionals. Those in their fifties were the largest group, and the mean length of care manager experience was nearly 10 years. Thus, the majority of the interviewees had managed a large number of cases as care managers.

The largest category [the importance of performing nutritional management through collaboration with other professionals and services], consisting of 76 codes, represents care managers' awareness. Background factors associated with the highest frequency of this category being mentioned by the care managers are discussed while considering its relationships with the other categories, as follows: [The importance of performing nutritional management through collaboration with other professionals and services] was strongly correlated with [assessing the nutritional status based on the living conditions and body weight]. For the care managers, [assessing the nutritional status based on the living conditions and body weight] for care-dependent older people, to suggest [the importance of performing nutritional management through collaboration with other professionals and services], experiencing the management of those with [mental and physical dysfunctions due to a decline in the nutritional status] as an approach and [realizing the association between nutritional status and mental and physical functions] as a state of awareness may have been important. The correlation and mutual influence between these 2 categories were strong. To address such a situation, the care managers continued to adopt approaches, such as [devising measures for nutritional management from the perspective of a care manager], possibly leading to [assessing the nutritional status based on the living conditions and body weight]. These 2 categories were also strongly correlated, suggesting interactions between them. At the same time, the care managers may have developed a dilemma, adopting the 2 approaches, [assessing the nutritional status based on the living conditions and body weight] and [devising measures for nutritional management from the perspective of a care manager], while being aware of the [difficulty in accurately assessing the nutritional status]. [Insufficient nutrition education through care manager training] and [distress due to problems care managers cannot resolve alone] were described as factors associated with such awareness and approaches, and the correlation and mutual influence between these were also strong. The care managers may have experienced another dilemma due to [distress due to problems care managers cannot resolve alone] and [realizing the association between nutritional status and mental and physical functions]. However, [distress due to problems care managers cannot resolve alone] may have put them into [devising measures for nutritional management from the perspective of a care manager], and [devising measures for nutritional management from the perspective of a care manager] may have paved the way for [assessing the nutritional status based on the living conditions and body weight]. The care managers' awareness of [the importance of performing nutritional management through collaboration with other professionals and services] may have been promoted by realizing the [difficulty in accurately assessing the nutritional status] and consequently experiencing a dilemma. The structure shown in Figure 2 outlines these approaches adopted by and awareness among care managers to improve care-dependent older people's nutritional status.

Nutritional improvement for care-dependent older people is a measure to prevent care dependency and its progression or a methodology to support the independence of these people, adopted with the revision of the Long-Term Care Insurance Act in 2006. Skills needed by care managers to provide such support are classified into 5 domains: counseling skills, knowledge and skills required for care management, trust-based relationships, personality changes through communication, and teamwork (Makino, 2013). Among the 5 domains, the status of knowledge and skills required for care management was described as {care manager training not addressing care management for people with malnutrition} by care managers in the present study, revealing [insufficient nutrition education through care manager training]. In the author's previous study, nutrition education was a challenge in creating care plans for nutritional improvement (Fujio, Kurokawa, Furukawa, et al., 2018). The care managers' narratives, revealing insufficient nutrition education, are consistent with this. Some researchers also note that few people understand why a poor nutritional status among older people is problematic (Kato, 2014), confirming that the provision of sufficient nutrition education for care managers is an important challenge. The Guidelines on Integrated Care for Older People (ICOPE) published by the World Health Organization (WHO) in 2017 focus on malnutrition as an area to be addressed through integrated care for older people (WHO, 2017).

Insufficient nutrition education was described as {unestablished problem-solving processes} and {a lack of expertise} by the care managers, perceiving [distress due to problems care managers cannot resolve alone]. On the other hand, managing older people with [mental and physical dysfunctions due to a decline in the nutritional status], represented by {the development of dementia symptoms after becoming bedridden due to a worsened nutritional status}, and [realizing the association between nutritional status and mental and physical functions], they developed a dilemma, described as {clearly perceiving the physical and mental influences of the nutritional status}. They addressed such a situation by [devising measures for nutritional management from the perspective of a care manager], such as {incorporating the nutritional status into care plans and continuously observing it when it is shown to be poor on assessment}, and [assessing the nutritional status based on the living conditions and body weight] while considering {the necessity of observation based on the body weight}. However, they also experienced a dilemma due to [difficulty in accurately assessing nutritional status], specifically {difficulty in asking further questions to family members who state that the patient is sufficiently eating}.

With regard to dilemmas experienced by care managers, communication is thought to resolve social dilemmas in socio-psychology (Norbert, & Kaufman-Gilliland, 1994). Such communication may explain [the importance of performing nutritional management through collaboration with other professionals and services], noted as {creating a team to support users and resolve their problems care managers cannot resolve alone} by many care managers in the present study. Nutritional management through collaboration with other professionals and services may promote communication, and consequently resolve dilemmas experienced by care managers trying to improve care-dependent older people's nutritional status. Kira stated, "Long-term relationships and communication have different functions to resolve social dilemmas" (Kira, 2013), as "there is a long-term relationship, but there is no arena for communication" (Kira, 2013). The care managers mentioned collaboration with other professionals and services, not indicating shallow relationships, such as acquaintances, but possibly suggesting the importance of promoting communication as part of team approaches to improve care-dependent older people's nutritional status. In team approaches for care management, communication is regarded as an important tool to confirm common goals, share necessary information, and provide mutual support among team members (Shirasawa, Hashimoto & Takeuchi, 2006). The structure of care managers' approaches to and awareness of nutritional improvement for care-dependent older people highlights the importance of communicating and collaborating with other professionals and services.

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ORIGINAL ARTICLE

A Multi-population Analysis of a Self-care Scale for Menstrual Pain;

Causal Relationships between Snacking and Menstrual Pain

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ABSTRACT

The purpose of this study was to verify the cross-validity of the "self-care scale for dysmenorrhea in young females" that we developed, to clarify the causal relationship between snacking and each of the factors with menstrual pain from the results of a multiple regression analysis of the related factors survey in the previous study (Yamamoto, 2019). The study participants were 1,000 young females who had menstrual pain and participated in this study, and 300 young females who had menstrual pain and participated in the related factors survey. Assuming that the two participant populations had the same factor structure, we performed a simultaneous multi-population analysis. Based on the multiple regression analysis of the previous study (Yamamoto, 2019), we set up a hypothesis for the causal relationship between snacking and each scale factor with menstrual pain, and then clarified the relationship using a path analysis. The results of our multi-population analysis revealed that the factor structure of the main survey and the related factors survey were equivalent, and that the self-care scale for menstrual pain could accurately measure six structural concepts even in different populations. When they ate more snacks, the 1st factor "perception of self-efficacy" decreased, which led to the 5th factor "expected level of burden needed to improve menstrual pain". It also led to the 4th factor "self-care using medicine". The more menstrual pain they had, the less of the 4th factor "self-care using medicine" they performed. It was demonstrated that the self-care scale for menstrual pain had cross-validity. The relationship between snacking and each factor with menstrual pain became clear.

＜Key-words＞
menstrual pain, self-care scale, multi-population analysis, snacking, causal relationship

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I. Introduction

The background of this research suggests that there has been a change in the life cycle of contemporary women in Japan. Due to women marrying later, giving birth later in life, and the declining birthrate, the range of time in a woman's life from menarche to giving birth has widened. Currently they experience menarche at the age of 12 on average, they give birth for the first time at 30 years old on average, and the birth rate has declined; thus, the number of menstrual discharges a woman experiences in her lifetime has increased ten times compared to women in previous generations. As the number of menstrual discharges has increased, the number of women who experience dysmenorrhea has also increased. The number of young females who complain of menstrual pain is higher than 30 years ago; possibly because they are not good at performing self-care.

Hence, we conducted the following series of studies to develop a scale for young females to help them perform self-care for menstrual pain. Based on the theory of Pender's Revised Health Promotion Model, we created a scale draft of 65 items from 10 concepts. We used the 5-step Likert scale, from selections "It is very true" to "It is not true at all". After confirming the validity of the content at an expert meeting, we conducted a pretest, a preliminary survey, the main survey, and a related factors survey, and then performed a correlation analysis, an exploratory factor analysis, and a confirmatory factor analysis to determine the criterion-related validity, the validity of the structural concept and reliability. Then, we developed a self-care scale for dysmenorrhea in young females, with 23 items and 6 factors. The six factors were as follows: the first factor was "perception of self-efficacy", the second factor was "intention to improve menstrual pain", the third factor was "self-care that can be achieved by making lifestyle changes", the 4th factor was "self-care using medicine", the 5th factor was "expected level of burden needed to improve menstrual pain", and the 6th factor was "feelings about self-care treatment" (see Table 1).

In this study, young females refer to women in their late teens and early twenties who have a stable ovulation cycle but are prone to having menstrual pain.

The survey was conducted in July 2017 on 1,000 females aged 18 to 22 who had menstrual pain. The related factors survey was conducted in March 2018 on 300 women aged 16 to 24 who had menstrual pain. The survey periods and the age groups were slightly different.

For each individual population, we confirmed the factor structure based on our confirmatory factor analysis. It was necessary to confirm that the "self-care scale for dysmenorrhea in young females" would be a practical scale because it is intended to be used by many young women. Therefore, we analyzed the main survey and the related factors survey at the same time to confirm whether or not their factor structures with the same number of factors could be reproduced in the two populations.

<Table 1> Self-care Scale for Young Females with Dysmenorrhea

First factor: Perception of self-efficacy
1) I am someone who prefers to do things thoroughly and without delay. 2) Once I start working on something, I follow it through to completion. 3) Once I can plan things by myself, I am confident I can do them well. 7) I can achieve the things I have decided on my own.
Second factor: Intention to improve menstrual pain
34) From now on, I would like to consider my physical condition daily before my menstruation period. 33) Before my menstruation period, I would like to take agreeable treatment actions. 36) I want to continue treatment actions until I can improve my menstrual pain. 35) I would like to improve menstrual pain and enjoy my daily life more.
Third factor: Self-care that can be achieved by lifestyle changes
27) I do not eat or drink cold food so as not to cool my body during my menstruation period. 28) During menstruation, I carefully select my clothing to stay warm. 29) During menstruation, I'm engaged in light exercise to promote circulation around the pelvis. 31) I am not a picky eater. I consider nutritional balance when I eat. 30) During my menstruation period, I try to sleep for seven to eight hours to ensure I get enough sleep.
Fourth factor: Self-care using medicine
24) If I have pain, I try to take painkillers as soon as possible. 23) During my menstruation period, I try to take painkillers if I have them on hand. 25) As soon as menstrual pain appears, I try to take painkillers.
Fifth factor: Expected level of burden needed to improve menstrual pain
14) I do not want to spend time trying to improve my menstrual pain. 16) In order to improve my menstrual pain, I do not want to do anything that does not bring immediate results. 17) I do not want to spend much money trying to improve my menstrual pain.
Sixth factor: Feelings on self-care treatment
5) I want to find opportunities to try new things. 4) I try to cope with things positively, even if it is my first attempt. 6) If I decide to work through something, I prefer to start soon. 8) I think it is good to do things even if I need a lot of effort to achieve doing them.

The related factors survey showed that based on the multiple regression analysis of the previous study (Yamamoto, 2019), those who frequently snacked had a lower 1st factor "perception of self-efficacy" and a higher 5th factor "expected level of burden needed to improve menstrual pain". The more severe the menstrual pain they had, the less they performed the 4th factor "self-care using medicine". Based on these results, it became necessary to further explore the relationship between the multiple regression analysis and each factor.

We will establish a hypothesis about the causal relationship between snacking, the first, fifth and fourth factors and the degree of menstrual pain, and clarify it using path analysis.

II. Subjects and Methods

1. Determining validity

We created a self-care scale for menstrual pain with 30 items and 6 factors from a draft that had 65 items based on the revised Pender's Health Promotion Model along with expert meetings, pretests, and preliminary research.

2. Main survey

1,000 women who had menstrual pain between the ages of 18 and 22 responded to our internet surveys, and a week later, 705 of them also responded to the retest. We confirmed a co-relationship between our scale and Yamauchi and Takama's "dysmenorrhea self-care scale for nursing students", and we confirmed its criterion-related validity. From the results of the exploratory factor analysis and confirmatory factor analysis, 23 items with 6 factors were obtained.

3. Investigation of related factors

We conducted an internet survey with women who had menstrual pain and were between 16 and 24 years old. The results of our confirmatory factor analysis obtained 23 items with 6 factors; thus, we confirmed the validity of our structural concept. The results of our multiple regression analysis of related factors suggested an association between the severity of their menstrual pain, their attempts to lose weight, snacking, irregular mealtimes, sleep, and bathing.

4. Method of analysis

1) We tried to confirm the equivalence between the main survey and the related factors survey using a multi-population analysis, and to prove that there is no bias in the responses between the main survey and the related factors survey. While considering the configural invariance and metric invariance, we plan to add equivalence constraints to the path coefficients and variance values step by step, and examine if there are any differences in factor structures based on the differences in fit indices.

2) A survey conducted by Yamauchi (2008) on premenstrual syndrome from the viewpoint of lifestyle and health behavior among adolescent women revealed that 84.8% of them ate snacks, which was the most common lifestyle habit. In addition, within their health behavior habits, taking painkillers was the most common habit, which accounted for 35.5%.

Miyazaki (2010) reported that stressed individuals thought more about sweets and had increased sensitivity to sweetnesses. -Paraphrased- Their eating habit of eating a large amount of snacks indicates a psychological state in that they feel anxious and lack self-confidence.

From the results of the literature and the multiple regression analysis of our previous study (Yamamoto, 2019), we established a hypothesis that states " Women who snack a lot (they eat things that they think they should usually avoid eating) have a lower perception of self-efficacy (they know they are not patient), so they had a stronger feeling that efforts to reduce their menstrual pain were burdensome. Women who felt that reducing their menstrual pain was burdensome perform self-care using medicine (because they know they are not patient). " In order to verify this hypothesis, we performed a path analysis to examine the degree of model fit indices as well as the relationship between each variable.

For the evaluation of model fit indices in structural equation modeling, we used the Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Comparative Fit Index (CFI), and the RMSEA (Root Mean Square Error of Approximation). The closer the GFI is to 1.0, the more explanatory the model is, and GFI ≧ AGFI. If the CFI is 0.9 or more, it is determined that the model explains the data. If the RMSEA is 0.1 or less, the model can be adopted. The significance level of the pass coefficient was set to be 5%.

Regarding statistical software, we used IBM SPSS 24.0 for windows and Amos 26.0 for the above analysis.

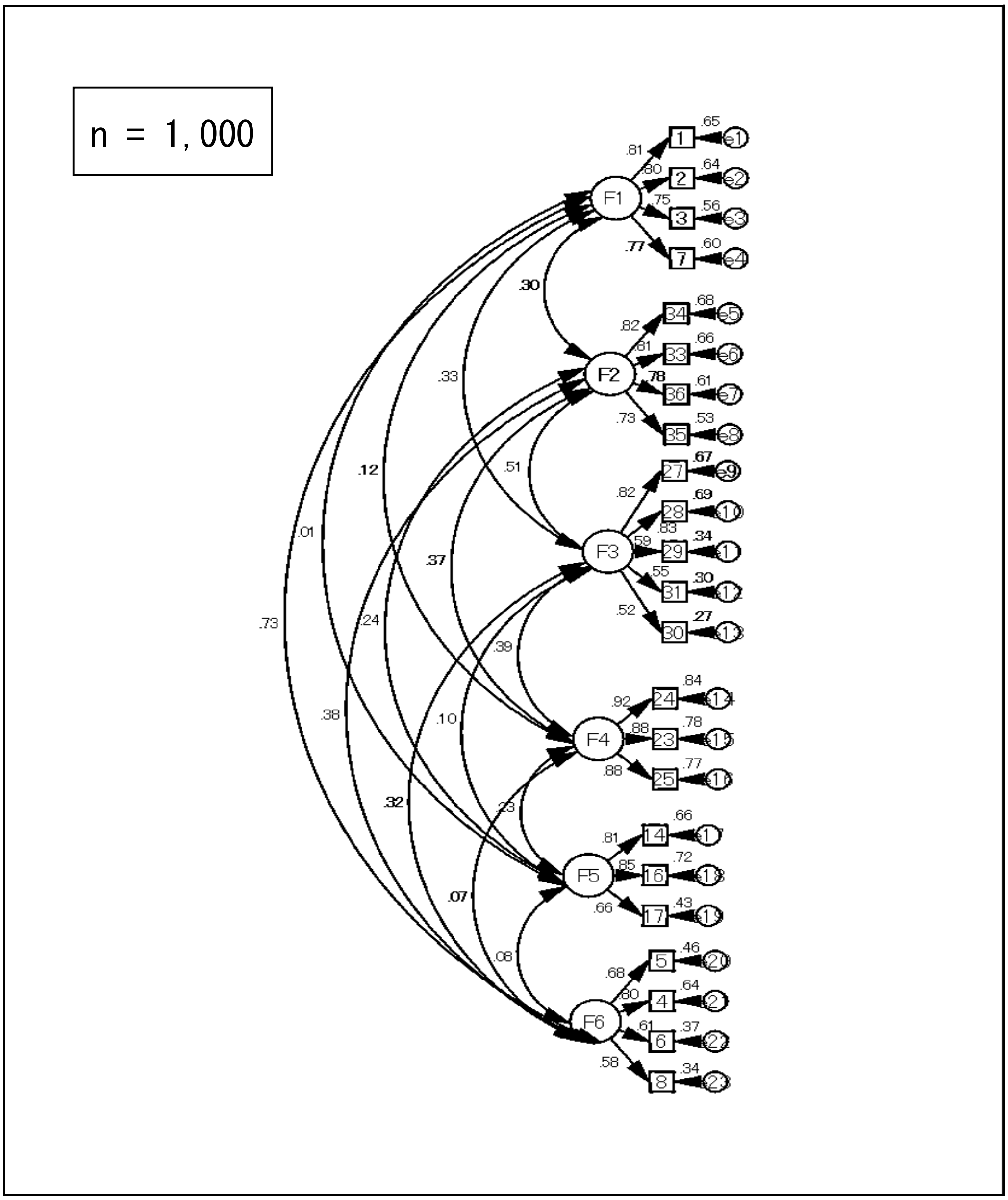
5. Ethical considerations

We explained the purpose of our main survey and preliminary survey on a questionnaire both orally and in written form, and conducted the surveys after obtaining consent forms from everyone. The internet surveys for the main survey and the related factors survey were consigned to separate survey companies. We created the research explanation and consent screens, and designed the system so that viewers could only respond to the surveys after they agreed to give consent. The survey started after our pledge that there was no conflict of interest with the survey companies and that the survey would not be used for purposes other than our research and that the respondents' anonymity would be maintained. The main research was carried out after obtaining consent from the Ethics Review Committee of the International University of Health and Welfare (Approval number: 14-Io-63, 15-Io-139, 17-Io-7).

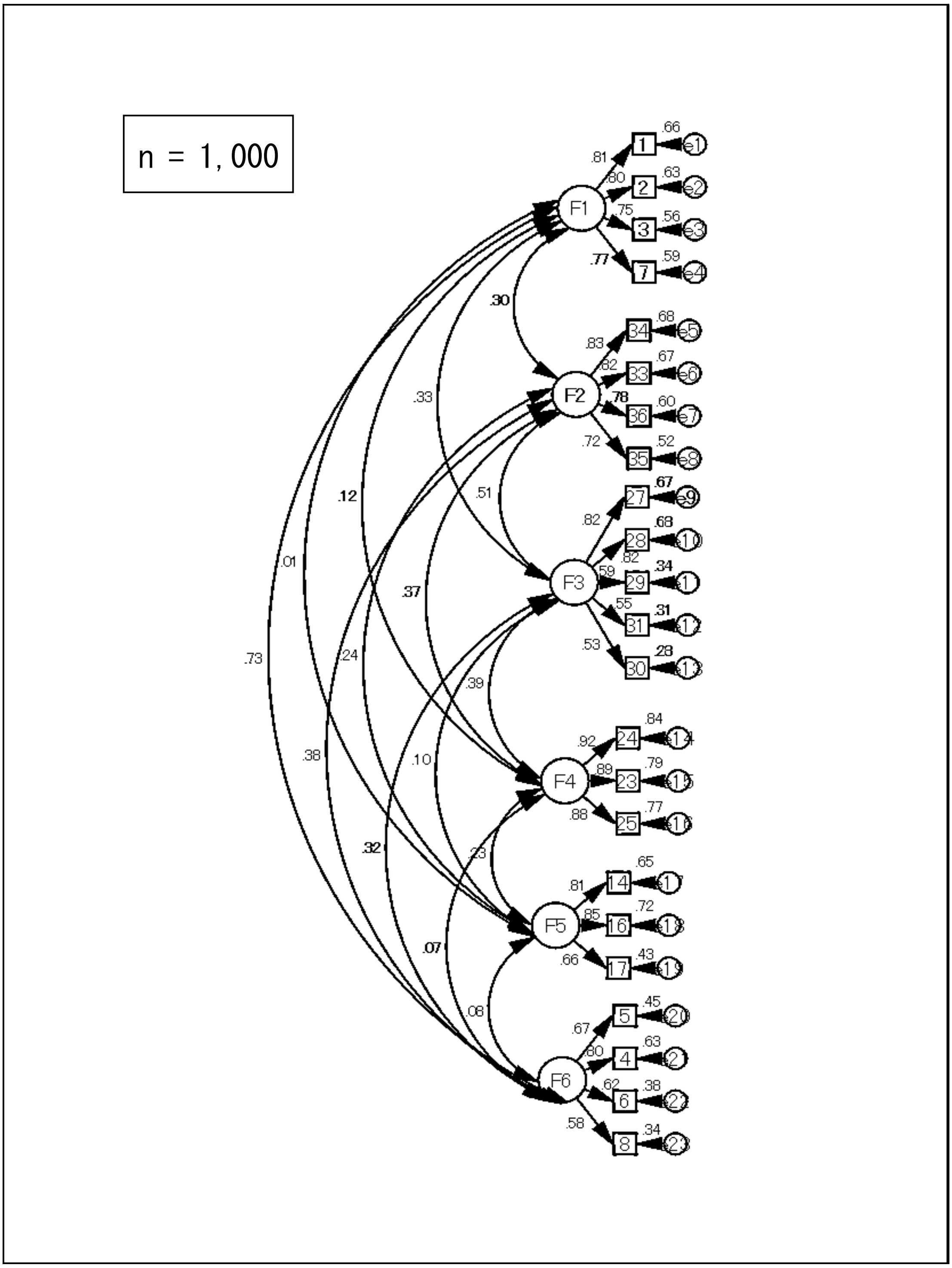
III. Results

1. Factor structure of the main survey and related factors survey

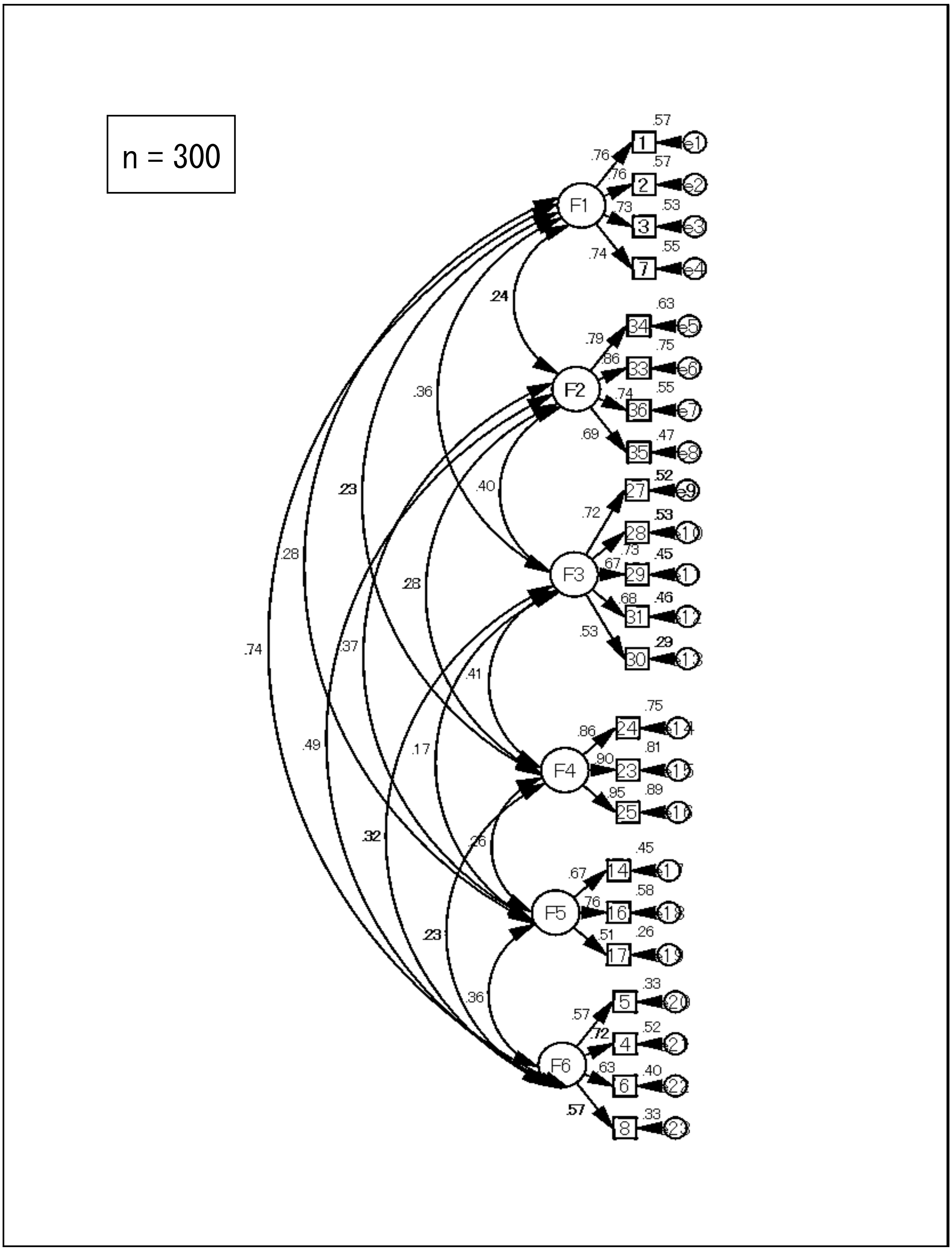
We conducted a multi-population analysis simultaneously with the two groups of the main survey and the related factors survey (See Figures 1, 2, 3, and 4).



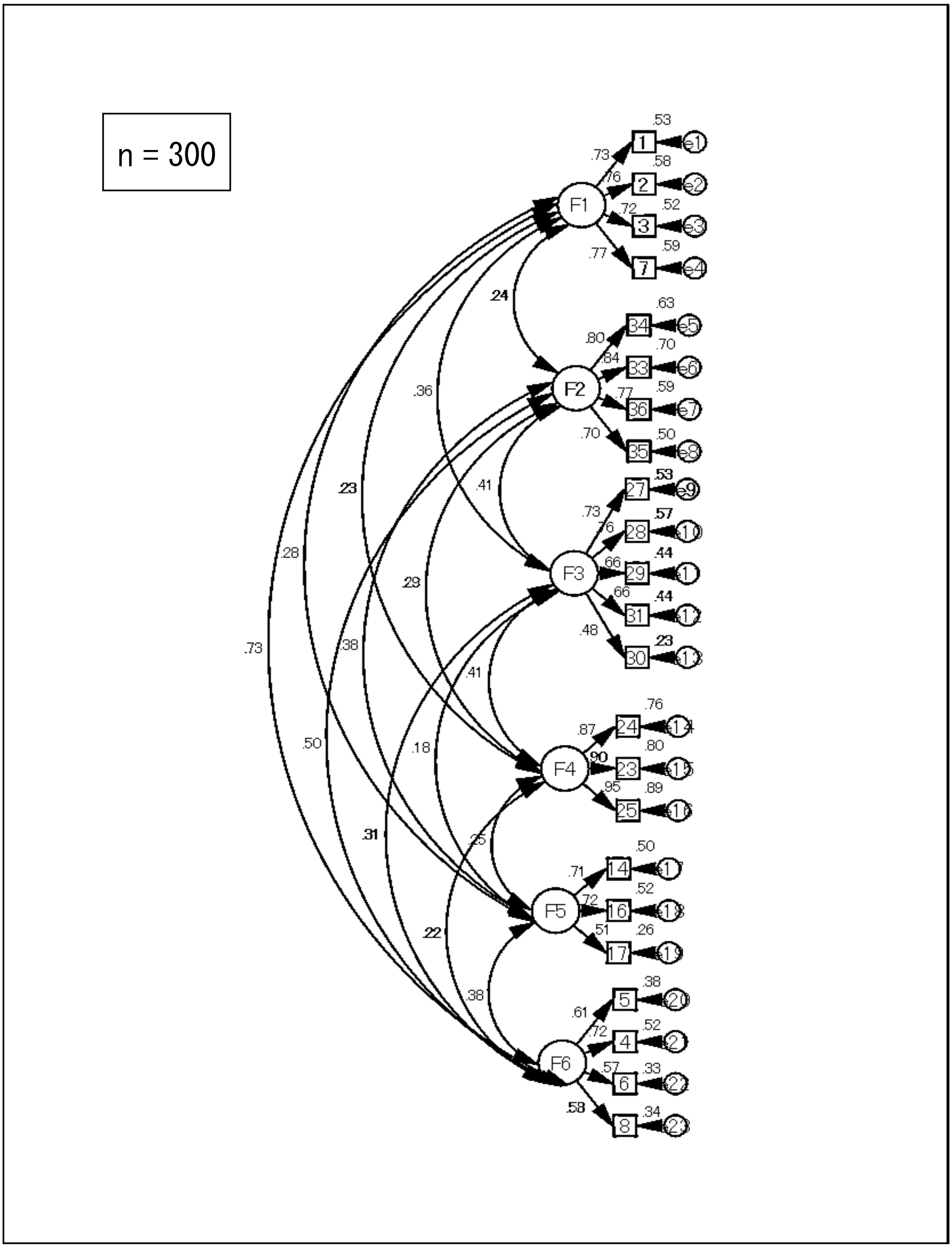
<Figure 1> Multigroup Structural equation modeling Main survey
(No equality constraint)
F1: Perception of self-efficacy, F2: Intention to improve menstrual pain,
F3: Self-care that can be achieved by lifestyle changes, F4: Self-care using medicine,
F5: Expected level of burden needed to improve menstrual pain,
F6: Feeling on self-care treatment



<Figure 2> Multigroup structural equation modeling Main survey
(With equality constraint)



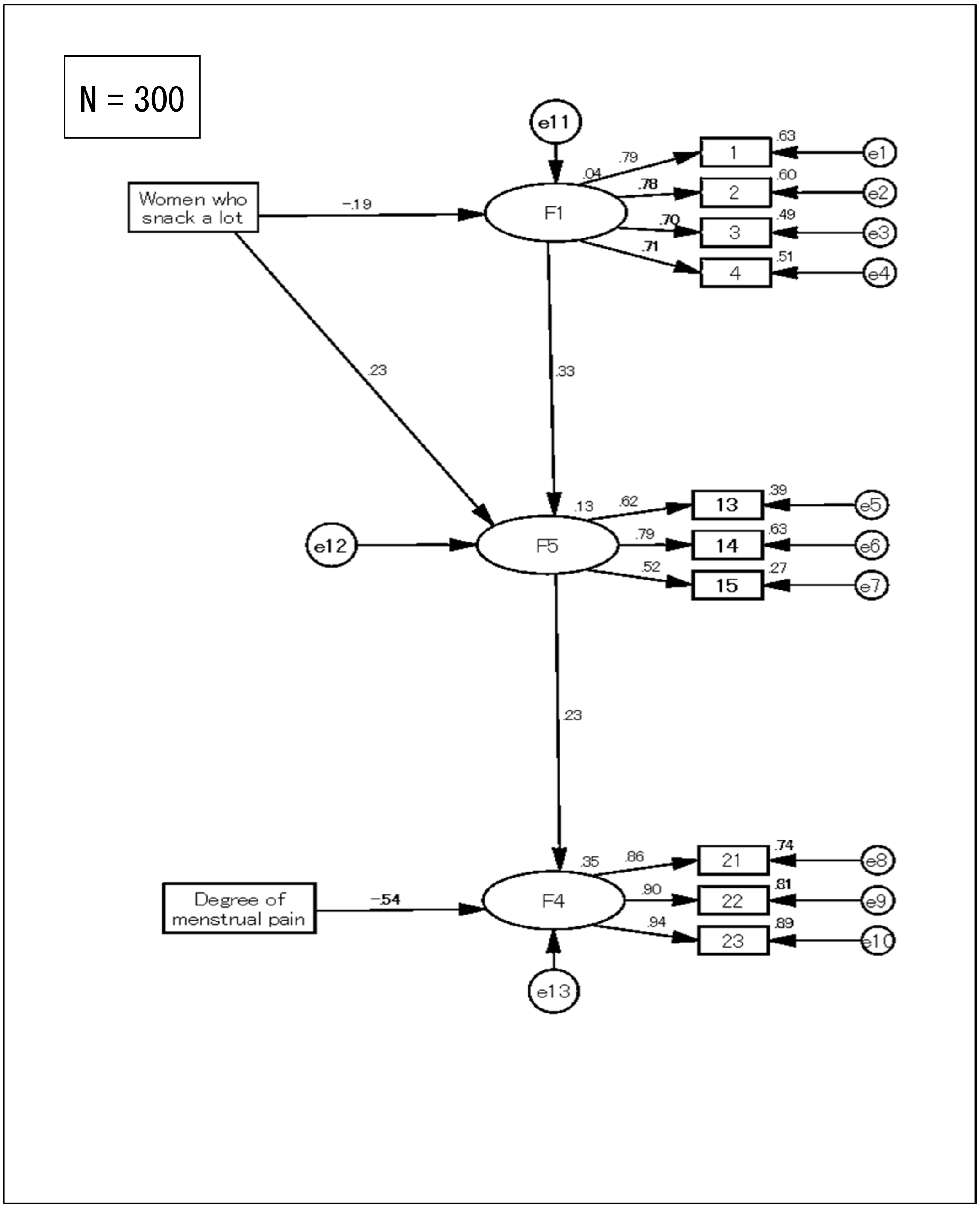
<Figure 3> Multigroup structural equation modeling Related factor survey
(No equality constraint)



<Figure 4> Multigroup structural equation modeling Related factor survey
(With equality constraint)

The adaptation of the configural invariance model was as follows: GFI = 0.904, AGFI = 0.876, CFI = 0.928, and RMSEA = 0.043. The adaptation of the metric invariance model was as follows: GFI = 0.902, AGFI = 0.878, CFI = 0.927, and RMSEA = 0.042. It was clarified that the factor structure is the same in both the main survey and the related factors survey (see Figures. 1, 2, 3, and 4), and the six structural concepts could be measured equally.

2. The causal relationship between snacking, the first, fifth and fourth factors and menstrual pain (see Figure 5)



<Figure 5> The causal relationship between snacking, the first, fifth and fourth factors and menstrual pain

From the results of our multiple regression analysis, we established a hypothesis that states "Women who snack a lot (they eat things that they think they should avoid eating) have a lower perception of self-efficacy (they know they are not patient), so they had a stronger feeling that efforts to reduce their menstrual pain were burdensome. Women who felt that reducing their menstrual pain was burdensome perform self-care using medicine (because they know they are not patient)."

The results showed the following model fitness indices: GFI = 0.932, AGFI = 0.896, CFI = 0.950, RMSEA = 0.071, which met the statistical tolerance level.

The results of the path estimated value in Fig. 5 and its statistical significance test showed a significant relationship between "snacking a lot", the 1st factor "Perception of self-efficacy" ($\beta = -0.19$, $p < 0.01$) and the 5th factor "Expected level of burden needed to improve menstrual pain" ($\beta = 0.23$, $p < 0.01$). In addition, the 1st factor "Perception of self-efficacy" and the 5th factor "Expected level of burden needed to improve menstrual pain" ($\beta = 0.33$, $p < 0.01$) showed a significant relationship. It was also confirmed that there was a significant relationship between the 5th factor "Expected level of burden needed to improve menstrual pain" and the 4th factor "Self-care using medicine" ($\beta = 0.23$, $p < 0.01$). The degree of menstrual pain was significantly related to the 4th factor "Self-care using medicine" ($\beta = -0.54$, $p < 0.01$).

IV. Discussion

1. **Factor structure of the main survey and the related factors survey**

In the multi-population analysis of the main survey and the related factors survey, there were almost no effects on the path coefficient and model fitting in both the configural invariance model and the metric invariance model. The fitness was GFI $\geqq$ 0.9, and the AGFI was slightly lower than 0.9, however, GFI $\geqq$ AGFI was shown, thus, it is in an acceptable range. CFI $\geqq$ 0.9 and RMSEA $\leqq$ 0.05, so it shows good model fitness.

Regarding a multi-group analysis to prove that there is no difference in response trends between the groups when the population of two groups are different, Toyoda(2007) states that if we analyze samples extracted from multiple populations simultaneously, rather than individually, we can prove the existence of differences between populations in the entire model based on various fitness indices.

In the multi-population analysis, we examined the factor structure for equivalence between the main survey and the related factors surveys; then, we found that the factor structure of the menstrual pain self-care scale was equivalent.

In other words, there were no significant differences in the fitness indices in the multi-population analysis of 1,000 people in the main study and the 300 people in the related factors survey, so it became clear that the self-care scale for menstrual pain is a scale that can be used without differences in any population.

2. The causal relationship between snacking, the first, fifth and fourth factors and menstrual pain

A survey conducted by Yamauchi (2008) on premenstrual syndrome from the viewpoint of lifestyle and health behavior among adolescent women revealed that 84.8% of them ate snacks, which was the most common lifestyle habit. In addition, within their health behavior habits, taking painkillers was the most common habit, which accounted for 35.5%. Menstruation caused stress and snacking. And it seems that they dealt with menstrual pain by internally taking painkillers.

The results of the multiple regression analysis of the previous study (Yamamoto, 2019) indicated that those who frequently snacked had a lower 1st factor "perception of self-efficacy", and a higher 5th factor "expected level of burden needed to improve menstrual pain". With regard to menstrual pain, it was shown that the more severe the menstrual pain they had, the less self-care they performed; furthermore and most significantly, they barely performed the 4th factor "self-care using medicine".

A Miyazaki's survey (2010) on the eating habits of high school and college students found that 20% of students skip breakfast while 60% of them eat snacks to fill their stomach. Furthermore, their eating habit in which they eat a large amount of snacks without having breakfast or lunch indicates a psychological state in that they feel anxious and lack self-confidence. In other words, it is inferred that there is self-distrust and anxiety among women who snack a lot, and this reduces their self-efficacy.

Based on the items of eating habits, Sumai & Taniguchi (2015) showed that there are a number of students who have the habit of snacking almost every day. Since psychological factors such as changes in the learning environment or stress have an effect on their snacking habits, it seems that psychological factors have a significant influence. It would be easy to just instruct them to stop snacking, however, this is not effective. It is important to consider their stress in the background and help them to relieve such stress. However, psychological stress varies depending on the environment they are in, so the actions they take need to change while considering their environment each time.

Reduced self-efficacy from snacking on a regular basis makes them unable to perform actions needed to improve their menstrual pain. Through their menstrual health care program (Nagatsu & Nagathuru, 2018) showed that certain changes, i.e. if women continue to develop self-care habits while also paying attention to their body and mind, then their self-efficacy improves. He states that self-efficacy is important in motivating behavioral changes. After all, it was predicted that the actions necessary to improve menstrual pain cannot be achieved unless self-efficacy improves. If they reduce their snacking and regularize the rhythm of their meals by making efforts to alleviate their psychological stress, they may get a higher sense of self-efficacy. A survey on university students conducted by Sumai & Tanigichi (2015) showed that snacking was one of the characteristics of eating habits. It is said that dietary habits are one of the factors that affects menstruation.

Women who frequently snack come to understand that they are not patient, and they perform self-care using medicine for their menstrual pain despite their snacking. This lack of patience leads to a form of self-care which is to immediately use medicine for their menstrual pain. However, another outcome showed that the more menstrual pain they had, the less self-care they performed using drugs. According to Uemura, Sakae & Matsumura (2013), those who have severe menstrual pain have significantly higher "disastrous thinking". Based on their experiences being unable to solve their menstrual pain, they adopt "disastrous thinking" as a coping strategy, which shows how difficult it is to control menstrual pain in Japan. According to Hirata (2011), 51.3% of the women used painkillers when their pain actually appeared, and 39.7% of them thought they were ineffective. Their reluctance to use painkillers delays their chance to use them. Furthermore, it maintains that 21% of the respondents thought that "menstrual pain should be endured". According to Fukuyama (2017), some of the respondents were absent from school or work and just stayed in bed after taking NSAIDS, so it was shown that the way they were using NSAIDS may not have been appropriate. From these facts, it was shown that when women who have strong menstrual pain don't take measures and simply try to put up with the pain, they end up with stronger pain, and then even if they take painkillers after that stronger pain starts, the painkillers don't work sufficiently. Thus, even if they take painkillers, they don't feel better, so they stop taking painkillers; making it impossible for them to perform self-care using medicine. Then, it is thought that they are likely to start "disastrous thinking" because they could not cope with their menstrual pain, and they give up trying to control their menstrual pain.

Matsumoto (2004) maintains that promoting self-care for menstrual pain and other concomitant menstrual symptoms that cause a significantly negative image towards menstruation may help women to accept themselves as women, establish gender identities, and also establish individual identities. Menstruation occurs every month, so it is important for individuals to perform self-care for it. According to Nagatsu, et al. (2012), it became clear that 30% of women who have severe menstrual pain took painkillers after they felt that they couldn't put up with the pain anymore. It is also important to provide guidance on how to effectively take medicine at the right time. Furthermore, Yamasaki & Douchi (2011) maintain that for women who have strong menstrual pain in every cycle, it is recommended that medicine should be taken at the beginning of their menstruation or immediately before it starts, because prostaglandin secretion can be suppressed earlier, resulting in a higher analgesic effect.

As a form of self-care, they need to take painkillers for menstrual pain as soon as possible before the pain appears.

V. Conclusion

1. The results of this multi-population analysis showed that the factor structure of the main survey and the related factors survey are equivalent, and the self-care scale for menstrual pain can also be used in other populations.
2. When they ate more snacks, the 1st factor "perception of self-efficacy" decreased, which led to the 5th factor "expected level of burden needed to improve menstrual pain". It also led to the 4th factor "self-care using medicine". The more menstrual pain they had, the less of the 4th factor "self-care using medicine" they performed.
3. It is important for females who snack a lot to reduce their psychological stress and improve their self-efficacy.
4. For females who have strong menstrual pain, it is recommended that they take painkillers before the pain begins.

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We declare that there are no conflicts of interest associated with this manuscript.

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ORIGINAL ARTICLE

Issues in Spousal Bereavement Support for Elderly Men in Japan

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ABSTRACT

This study aimed to review the literature related to elderly men after spousal bereavement in Japan, to clarify the characteristics of grief and trends in life, and to gain insights into the support system and future research issues. Of 13 studies found, two were qualitative and 11 quantitative. Eight studies were conducted on general elderly adults, with a few results focusing on the grief work itself of elderly men at home. Elderly men after spousal bereavement tended to be unable to continue “interacting with neighbors and relatives” as they did before the death of their wives. Together with the “human relations of friends and others made before the death of their wives,” the way of involvement in maintaining these was through a support perspective. In addition, the elderly men desired more support for their “current situation” than “bereavement-related situations,” and their view of support was characterized by the “examination of timing” and “selection of contents” of specific support for solving real-life problems. Elderly men who had provided nursing care before bereavement had a high feeling of emptiness owing to the loss of their career role. As such, the main issues were pre-bereavement support and continuous support after bereavement. No research had focused on the stressors of spousal death, dementia, strength of family and community, and evaluation of support; as such, these areas merit future research.

＜Key-words＞
elderly men, spousal bereavement, grief process, adaptation to life

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I. Introduction

In older age, various experiences of loss accumulate. Elderly people are more likely to experience “loss of mind and body,” “loss of economic base,” “loss of social connection,” and “loss of purpose of living” (Inoue, 1984). The target of “supporting the mind” of elderly adults is spouses and partners: 65.3%, children: 57.4%, and grandchildren: 17.9% (Cabinet Office, 2010).

In Japan, elderly adults living alone aged 65 years or older account for 6,274,000 households, which represents 26.4% of households with persons aged 65 years or older (Ministry of Health, Labor and Welfare, 2017). Research has found no differences between genders in grief response after bereavement (Miyabayashi & Yamakawa, 2005); however, men are more likely to delay grief recovery than women (Sakaguchi, Kashiwagi, Tsuneto et al., 2000; Hitomi, Osawa, Nakamura et al., 2000). Bereaved men are less likely to release their feelings of sadness and improve their mental health (Sakaguchi, Tsuneto, Kashiwagi, et al.,2002). And their mental problems may not be resolved five years after the death of their spouse (Okamura, 1992). In some cases, dealing with bereaved men who take time to recover from grief can be a challenge. In addition, elderly men are generally not adept at performing general housework owing to their living background, and therefore, after the spousal bereavement process, burdens are likely to occur in maintaining daily life, such as housework (Kono, Tadaka, Okamoto et al., 2009). Elderly men who have lived in an era when gender roles were mainly divided are less reluctant to interact with relatives and have less interaction with people and social support compared with elderly women (Okamoto, Kono, Tsumura et al., 2009). Therefore, they are vulnerable to feelings of loneliness (Tadaka, Kono, Kunii et al., 2012). Indeed, elderly men have higher levels of loneliness than elderly men with spouses (Kawai, 1988), and suicide of elderly men who lost their spouses has also been reported (Ide & Senjyo, 2001). Studies have clarified that loneliness can be reduced by social participation, such as engaging in volunteer activities (Okamura, 1994). As being a man is one of the factors that predict confinement (Harada, Sato, Saitoh et al., 2006), elderly men are at greater risk of serious social isolation.

Under these circumstances, elderly men may live with a feeling of inconvenience in life and lack of social relations, in addition to loss of affective objects and roles. In Japan, where living alone as older adults is becoming the standard form of living, the challenge is to introduce a new lifestyle for elderly men while coping with grief after spousal bereavement, from the perspective of preventing confinement and isolation. Therefore, studies focusing on the process of grief and adaptation to lifestyle of elderly men after spousal loss are considered significant in obtaining insights on support for continuing life in their home, where they are comfortable and familiar with everything.

The average life expectancy of Japanese in 2018 was 81.25 years for men and 87.32 years for women. The average life expectancy of women is more than six years longer than men (Ministry of Health, Labor and Welfare, 2019).　Studies on spousal bereavement has tended to focus on women's grief processes in detail, as women have longer life expectancies than men. In addition, many studies have focused on elderly adults in general, examining gender differences, and on the process of grief itself. Few studies relate to the construction and maintenance of the life of elder men at home after spousal bereavement.

II. Purpose of Research

In this study, by reviewing research related to elderly men living at home after spousal bereavement, we aimed to clarify their characteristics and the related trends from the perspectives of adaptation to the process of grief, life adaptation, reconstruction, and support. The goal was to obtain suggestions for support and identify issues for future research.

III. Research Method

1. Document Search Method and Document Selection Process

1) Literature search on Ichushi-Web and CiNii

Ichushi Web and CiNii were used for the literature search. We narrowed down the search to "original papers" and "with abstracts" in which the details of the results were described, and searched for studies in Japan with "full-text." In this study, we searched only Japanese articles because elderly adults living alone are increasing in Japan. The search was performed in December 2019. We extracted data on the characteristics, psychological processes, adaptation, and construction in elderly men after spousal bereavement to outline the changes brought about by the background and circumstances surrounding elderly adults. For target articles, there was no limit on the target search period. We searched for "male elderly" OR "elderly men" OR "elderly AND men" with "bereavement". A total of 87 papers were extracted: 64 from Ichushi Web and 23 from CiNii. Among them, we extracted 61 papers after excluding duplicates from Ichushi Web and CiNii.

2) Selection of Target Documents

The titles and abstracts of the 61 papers were confirmed, and the main concepts and research contents arranged. The following were excluded according to the research purpose, and finally, 13 papers were analyzed, shown in Figure 1.

(1) Those with no research results referring to "elderly men" as the subject of analysis, such as those limited to women and those for general elderly adults whose sex is not identified

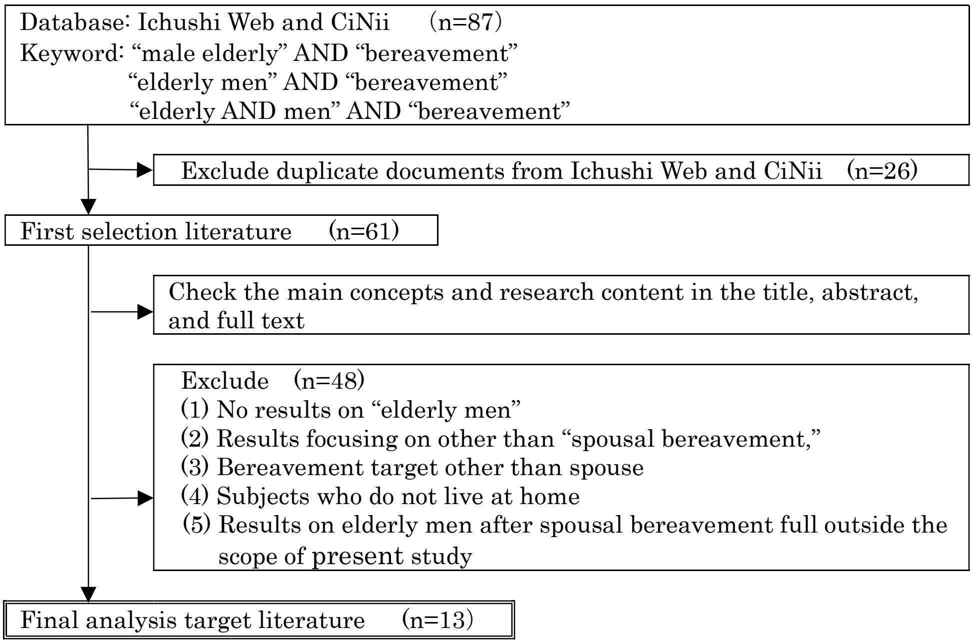
(2) Those with research results focusing on "bereavement," the search term, other than

"spousal bereavement," such as children and parents.

(3) Those with target age groups excluding elderly adults. Studies with participants not limited to elderly adults as cohort were included, so long as the average age of the study participants reflected elderly adults.

(4) Those with target participants not residing at home.

(5) Those with results on elderly men after spousal bereavement that fall outside the purpose of the present study.



<Figure 1> Process of Selection of Target Documents

2. Method of Analysis

We analyzed the trends and issues in the research on elderly men living at home after spousal bereavement using the following procedure.

1) For each study, the author name, publication year, research purpose, research design, subjects, and number of subjects were extracted.

2) Based on the previous section (Selection of Target Documents), the studies were tabulated by year of publication, and the study designs classified into qualitative and quantitative.

3) The research participants and methods were extracted.

4) We read the results of the study carefully and extracted parts related to the psychological processes and living conditions of elderly men after spousal bereavement. We noted the commonalities in psychosocial characteristics and tendencies.

IV. Results

1. Changes in Number of Studies over Time and Trends by Research Method

Thirteen studies have been published since 2000, four of which in 2005 alone. Two (15.4%) of the studies used a qualitative design, whereas 11(84.6%) used a quantitative design.

2. Trends by Participant and Content

Of the 13 papers, five (38.5%) included only elderly men after spousal bereavement, three (23%) included men who were not elderly adults after spousal bereavement, and five (38.5%) included non-spousal bereavement. By carefully reading the results, we extracted parts related to the psychological processes and living conditions of elderly men after spousal bereavement, and confirmed the viewpoint of support based on their characteristics and trends, shown in Tables 1 to 3.

1) Support from Grief and Related Factors

Among elderly adults who lost their spouse, women have worse mental health than men, whereas spirituality was stronger in women than men (Ikuta & Tanaka, 2012). Men with experience of spousal bereavement may show grief reaction more than three years after bereavement (Suzuki & Takikawa, 2005b). If the spouse had been hospitalized for a long time, the grief reaction tends to be strong, and grieving is made worse by fatigue and insomnia. Those who had shared in the care of their families report a greater sense of loss. Long-term hospitalization is one of the factors that increase grief after bereavement.

The case of an elderly man after the death of his spouse revealed that losing his role as husband shock his identity (Higashi & Nagata, 2005). As given in Table 1, his maladaptive coping mechanisms highlight the necessity of recognizing changes in identity that are caused by losing a spouse and of avoiding delayed expression of emotions, which could lead to isolation. Regarding bereavement reactions, people have reported feelings of self-responsibility and anger, with a majority feeling both (Miyabayashi & Yasuda, 2006). Studies have also reported people who turned their anger at the deceased, relatives, or others, and at medical professionals. One study with a majority of elderly female participants reported feelings of remorse and anger in bereaved elderly adults. As such, this tendency is regarded as a common emotion among men.

2) Practical Support in Real Life

Compared with emotional support, people receive less instrumental support. For example, cooking classes for men are expected to provide opportunities for going out, expanding friendships, and providing practical living support, such as for housework (Miyajima & Kitayama, 2011). One study focused on elderly widowers living alone who experienced difficulties in readjusting to life following bereavement, particularly in the area of housework. One study, conducted on elderly men living alone who experienced difficulties in readjusting to life following bereavement, reported that invitations to interact with others through meals can help in the recovery from grief (Nabatame, Mizuno & Sakai, 2018).

<Table 1> Literature targeting only elderly men after spousal bereavement

Author	Purpose	Research method (1) Target (2) Method	Results	Perspectives and issues of support indicated
Suzuki et al. (2005a)	To clarify the factors related to grief and to consider ways of nursing for adapting to life after spousal bereavement.	(1) 50 men (1–5 years after spousal bereavement) (2) Self-reported questionnaire survey by mail, the grief scale that translated Japanese version of RGEI.	*Grief reaction after bereavement confirmed after more than three years. *If the spouse had been hospitalized for more than a year, the grief reaction was strong. * Sense of loss was strong if they shared caring responsibilities in their family.	Necessity of long-term support during hospitalization because prolonged hospitalization will be among the factors related to grief.
Suzuki et al. (2005b)	To identify factors related to loneliness in men who have experienced spousal bereavement.	(1) 79 men (1–5 years after spousal bereavement) (2) Self-reported questionnaire survey by mail, Japanese version of the revised UCLA loneliness scale.	*Loneliness weakens year after year. *Loneliness was high for those reluctant to interact with relatives, had less than four friends, were caring alone, and did not wish to remarry.	Necessity of support by strengthening emotional ties and social networks to prevent isolation.
Miyajima et al. (20 11)	To clarify personal growth and related factors in bereaved elder men.	(1) 55 elderly men aged over 60 years (living at home after spousal bereavement) (2) Interview survey by home visit, scale of growth from bereavement experience.	*Growth is not related to bereavement-related situations. *Growth is related to the current situation. *People receive less instrumental support compared with emotional support.	Growth is acquired over time, driven by friendships and family roles. Necessity of providing a place to provide specific life support, such as housework; for example, cooking class for men.
Nabatame et al. (2018)	To clarifies triggers and the process of continuing to participate in meal programs.	(1) six elderly men living alone (participating in a meal program) (2) Semi-structured interview, qualitative analysis using M-GTA.	*They experienced difficulties in readjusting, considering invitations, repeatedly hesitating and consenting, healing through meals and the warmth of people, and requiring assistance for living alone.	Support for those living alone by providing opportunities and invitations to interact with others through meals.

Note: UCLA; University of California, Los Angeles. RGEI; revised grief experience inventory. M-GTA; Modified Grounded Theory Approach.

<Table 2> Literature including non-elderly adult men after spousal bereavement

Author	Purpose	Research method (1) Target (2) Method	Results	Perspectives and issues of support indicated
Kawaai et al. (2004)	To clarify whether bereavement recovery predicts successful aging.	(1) 184 bereaved people (including 75 men). (2) Interview survey conducted three times in 15 years. First:subjective well-being and depression scale and loneliness scale. Second:depression scale and loneliness scale. Third:GHQ and lively scale.	*Mental health was poor if loneliness increases or remains. *Happiness increases if loneliness decreases.	Loneliness as a predictor of mental health and well-being, issue of involvement for recovery from loneliness.
Miyabayashi et al. (2006)	To clarify the meaning of self-reproach and anger from bereavement.	(1) 57 elderly adults after spousal bereavement (including seven men) (2) Questionnaire survey, visual measurement scale.	*93% of the participants experienced self-reproach and/or anger, and 60% had both. * Half were angry at the medical staff.	Necessary for medical staff to confirm the effectiveness of coping reports to relieve anger and examine relations with restlessness, doubt, and distrust.
Ikuta et al. (2012)	To clarify the factors related to mental health in elder adults who lost their spouse in comparison with elderly adults with living spouses.	(1) 208 elderly adults (including 84 men, of whom 16 experienced spousal bereavement) (2) The Japanese version of GHQ28, Japanese version of WHOQOL-SRPB.	* Compared with elder men, elder women had better mental health; spirituality was strong after spousal bereavement.	Elderly people have various mental problems and complex spirituality structures, requiring evaluation of bereaved care assessment methods and improvement of care strategies to improve QOL.

Note: GHQ; The General Health Questionnaire. WHOQOL-SRPB; World Health Organization Quality of Life Spiritual Religious and Personal Belief.

<Table 3> Literature including bereavement other than spousal bereavement

Author	Purpose	Research method (1) Target (2) Method	Results	Perspectives and issues of support indicated
Hitomi et al. (2000)	To examine the factors related to the caregiver's grief recovery process up to two years after bereavement.	(1) 117 caregivers who cared for elderly adults (including 20 men, seven of whom were husbands) (2) Anonymous questionnaire by mail.	*The recovery process from grief two years after bereavement in elderly adults were particularly slow in men.	Predictive interventions in grief recovery, such as memorial services, support for self-help groups, and specialized therapeutic interventions.
Kawaai et al. (2005)	To clarify receipt of social support and perception of helpful support in bereavement.	(1) 262 Tokyo residents aged over 45 years (including 116 elderly men) (2) Classification of received support, calculate support receipt rate, and benefit rate.	*Spousal bereavement patterns show low benefit assessment rate despite high support receipt rate.	Necessary to consider the support to provide depending on the bereavement target.
Katsura et al. (2006)	To clarify the relation between the family caregiver's sense of accomplishment, satisfaction, and emptiness and pre-bereavement factors.	(1) 86 caregivers (elderly adults home bereaved from 2.5 months to 1.5 years) (2) Questionnaire survey by mail.	* The elderly the caregiver, the higher the caregiver's sense of achievement and satisfaction with care and death care. *Husbands' emptiness was high owing to loss of role of nursing care.	Necessity of support before bereavement (e.g., coordination between the caregiver and the care recipient), caregiver health management, and respect for the caregiver's purpose of life.
Katsura et al. (2007)	To clarify the life of and changes in elderly people who need home care during and after nursing care.	(1) 93 elderly caregivers bereaved within the last 2.5 months to 1.5 years (including eight men) (2) Questionnaire by mail.	*Regarding living conditions, "hobbies and interests," "roles other than carer at home," "neighborhood association activities," and "frequency of going out" increased.	Necessity to establish a support system that covers the period from the start to the end of nursing care.
Okamoto et al. (2009)	To clarify the withdrawal status of elder adults at home who experienced family bereavement.	(1) 72 elderly experienced spousal and family bereavement in one year (23 men) + 72 control group (2) Comparative study.	*Men who experienced bereavement have no one to consult with in their family or friends compared with women. *Men who experienced bereavement have less intention to use public services.	Necessity to develop a special community-based care program for bereaved elderly men.

3) Life Support Utilizing Coping of Elderly Men

Development and growth of elderly men's feelings derived from the bereavement process are unrelated to situations directly associated to bereavement, such as depressed mood, difficulties in life, and receiving support. Rather, feelings of growth were related to their current situation, such as current number of friends, their role in the family, and frequency of going out to learn to enjoy living alone（Miyajima & Kitayama, 2011）.

4) Support from the Perspective of Loneliness and Isolation

As for the social support for bereaved men, this group needs people who could run errands for them, who would care for or take care of them when they fall ill, and who would speak to them in a disaster. In addition, many elderly men report having no intention of using government services (Okamoto, Kono, Tsumura et al., 2009). Bereaved elderly men tend to become socially isolated before building new relationships after retirement. Loneliness from spousal bereavement tends to diminish with the passage of years after bereavement. However, those who are reluctant to interact with relatives, have less than four friends, have cared for their spouse themselves, and have no hope of remarriage have high loneliness (Suzuki & Takigawa, 2005), revealing the factors related to loneliness in elderly men. From the perspective of successful aging, sex differences are not mentioned. An increase in loneliness or high loneliness after bereavement leads to poor mental health. However, if loneliness decreases after bereavement, happiness increases (Kawaai & Sasaki, 2004). Loneliness is a predictor of mental health and well-being, and involvement and efforts to recover from loneliness have been a challenge. In spousal death, the rate of benefit evaluation is low even if the rate of receiving support is high, such as "consolation and encouragement" (Kawaai, Sasaki & Homma, 2005), indicating the need to consider support content and timing.

5) Support for Adaptation to Life after Loss of Caregiving Roles

From the caregiver's perspective, women have more caregiver counselors and more emotional support to help them after bereavement, and less for men (Hitomi, Osawa, Nakamura et al., 2000). In men, grief recovery is easily delayed.

Meanwhile, changes have been reported in elderly adult caregivers who completed caregiving with bereavement (i.e., the person receiving care died): in "mental vitality," such as hobbies and enjoyment, and "personal activities" and "social activities," such as outing frequency and town activities (Katsura & Sasaki, 2007). The results are not for spousal bereavement, and not specific to elderly men. However, they affirm the strength of the elderly adult's ability to adapt to life. Moreover, the older the caregiver is, the greater the caregiver's sense of achievement and satisfaction with care and end-of-life care (Katsura & Sasaki, 2006). As such, elderly men tend to have the highest average score of emptiness from the loss of caregiving roles. For this reason, pre-bereavement support helps increase post-bereavement achievement and satisfaction and adaptation to life with minimal emptiness.

V. Discussion

1. Perspectives of Support from the Trends in Research

Eight of the 13 studies targeted elderly adults in general, and few studies focused on the grief work itself of elderly men at home. Nonetheless, all of the studies analyzed presented various aspects and perspectives related to bereaved elderly men.

We sorted the 13 studies as follows: research related to grief reaction and the factors, such as personal growth from bereavement experience and its influencing factors (Miyajima & Kitayama, 2011) , recovering from bereavement from the perspective of successful aging (Kawaai & Sasaki, 2004) , feelings of guilt and anger (Miyabayashi & Yasuda, 2006), influencing factors related to grief (Suzuki & Takikawa, 2005a), influencing factors related to loneliness (Suzuki & Takigawa, 2005b),mental health status of elderly people who have lost their spouse in comparison with those who have not (Ikuta & Tanaka, 2012),transformation of identity (Higashi & Nagata, 2005) ; research related to bereavement experience as a caregiver, such as factors related to the caregiver’s grief process (Hitomi, Osawa, Nakamura et al., 2000), changes in life during and after caregiving (Katsura & Sasaki, 2007), satisfaction of caregiving, and satisfaction and emptiness (Katsura & Sasaki, 2006); and research focused on post-bereavement life and support, such as support for living alone through food-related interaction (Nabatame, Mizuno & Sakai, 2018), usefulness of receiving support (Kawaai, Sasaki & Homma, 2005), and isolation. The studies indicate that support for elderly men is not limited to nursing but rather closely related to the family and community where they live. In particular, additional research is required from the viewpoint of living support that can eliminate inconvenience and confusion in the daily life of elderly men.

We did not find studies related to the stressors of spousal bereavement nor on the grief process or lifestyle adaptation of elderly adult men with dementia. Moreover, associations with depression were not examined. Grief is a normal response, but if bereavement is regarded as a stressor that causes disability, then attention must be paid to its association with stressors in elderly men and dementia. In general, the lower the social support, the more severe and prolonged the grief reaction becomes. Therefore, researchers must accumulate knowledge on the strength of the family and the community surrounding elderly men from a social point of view as well as obtain objective information on support. Strategic evaluations also need to be performed.

2. Support for Elderly Men after Spousal Bereavement Derived from Research Outcomes

In spousal bereavement, coping with “life and life orientation,” which focuses on life and living without the deceased, correlates with mental health (Sakaguchi, Kashiwagi & Tsuneto, 2001). After spousal bereavement, elderly men face two issues: emotional coping with the loss itself and coping with secondary problems, such as rebuilding one’s life and solving real-life problems (Muroya & Tajima, 2013). Elderly men tend not to be good at performing household chores and building relationships that are different from interpersonal relationships before retirement. As such, solving real-life problems is a part of the grief process.

1) Coordination of the Elderly Men's Human Relationships

Elderly men after spousal bereavement tend to lack opportunities for and range in activities because they cannot continue to interact with their neighbors and close friends as they did before bereavement. However, those who have many friends have less psychological and social effects, such as loneliness and grief (Suzuki & Takigawa, 2005; Miyajima & Kitayama, 2011). Additionally, friendships established before spousal bereavement can reduce men's psychological burden. Therefore, it is necessary for elderly men to maintain both "interactions with neighbors and close relatives that the wives had previously performed" and "human relationships such as friendships established before bereavement."

Older men are more likely than women to hesitate in participating in interactions in a meal program, which has been shown to bring healing with the sharing of food and the warmth of people (Nabatame, Mizuno & Sakai, 2018). Elderly men have less interaction with people after spousal bereavement (Okamoto, Kono, Tsumura et al., 2009). As such, "opportunities" and "places" they can easily access to participate in the neighborhood will contribute to their interaction with the community. In addition, their interest in cooking can stimulate pleasure.

2) Involvement with Consideration for Content and Timing of Support

The situation at the time of bereavement affects feelings of growth in elderly women (Miyajima, Bessho & Hosoya, 2004). However, such feelings of growth from the experience of bereavement in elderly men are not related to "situations related to bereavement"; that is, the specific situation is relevant. Despite the high level of support received, such as "comfort and encouragement," men report low levels of benefits (Kawaai, Sasaki & Homma, 2005). The timing and content of support need to be based on factors that increase these bereaved men's feelings of growth. Losing a spouse means losing one's role as a husband. Such a loss affects the identity. The coping behaviors of an elderly man stabilizing have been reported (Higashi & Nagata, 2005). A future research topic is to clarify whether the coping behaviors are common to all elderly men after spousal bereavement.

3) Selecting Support that can Reduce the Burden and Difficulties in Daily Life

After spousal bereavement, in addition to grief, elderly men face inconveniences in life. If they can solve these daily problems, their capability to manage their lifestyle rhythm, such as eating habits, sleeping habits, and activities, can contribute to their stability. In addition, their stability is considered to be a factor promoting grief work for elderly men.

For elderly men, it is important to receive timely and appropriate support that addresses their individual needs, including emotional (behavior to address emotional aspects, such as bereavement and anxiety), instrumental (actions that provide practical resources and information to address problems at hand), and compassionate support (friendship activities to comfort the mind) (Kawaai, Sasaki & Homma, 2005).

4) Involvement in Life Adaptation after Loss of Caregiving Role

In elderly caregivers, bereavement as the end of caregiving changes their mental health, as well as personal and social activities (Katsura & Sasaki, 2007). The ability to adjust to a new life after both “family death” and “loss of care role” is expected to be an issue in elderly men. However, the average score of emptiness associated with the loss of the caregiver role is highest for husbands (Katsura & Sasaki, 2006). In many cases, public care support is often terminated owing to the death of the cared person. As such, a challenge is in providing continuous support.

VI. Limitation

In this study, we searched for papers with keywords related to “spousal bereavement” and “elderly men,” but few studies were specifically on “elderly men.” There may be a lack of validity and accuracy in the selection of related keywords. After carefully examining the results of the studies, we extracted the parts related to the psychological processes and living conditions of elderly men after spousal bereavement, and then investigated the characteristics and trends to classify the commonalities of support perspectives. The results of this study may have selective bias, as the procedure involved the subjective judgment of the researchers.

VII. Conclusion

Elderly men want more support in their current situation than in bereavement-related situations. From a support perspective, we should consider the specific timing and content of support to ensure that the actual issues are addressed.

Few studies have focused on Grief process including phase and period, and adaptation to life in elderly men living at home after their spouse’s death. Further research is needed from a comprehensive perspective.

To the best of our knowledge, no study has investigated spousal bereavement stress factors, grief in elderly men with dementia, family and community strength, and support evaluation. As such, these areas merit future research.

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ORIGINAL ARTICLE

A Fundamental Study on Health Anxiety in the Daily Life of Visually Impaired People Living in the Community and the Actual Situation of Patient Acceptance Systems at Medical Institutions

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ABSTRACT

In Japan, the number of visually impaired persons who develop at the middle of life is increasing because of super-ageing society. They tend to be have psychological stress, and thus decrease their health-related Quality of Life (HRQOL). In this situation, although the role of nurses is extremely important, system of nursing care against adventitious visually impaired patients is not established sufficiently. In this study, we aim to disclose the actual situation of health anxiety of the adventitious visually impaired persons in daily life and the current status and issues of acceptance systems at medical institutions. A semi-structured interview with five patients living in a community revealed that there were many characteristic psychological stresses caused by the health anxiety mainly based on psychological aspect. In addition, it was also found that the lack of patient acceptance system of medical institutions, including the lack of care of medical staff caused mental stress of patients. This study reveals a wide variety of health anxiety factors are exist with adventitious blindness and low vision patients in daily life. This information provides a lot of insights towards to examine in detail the nursing care system needed to improve HRQOL for them.

＜Key-words＞
visually impaired, health anxiety, health-related quality of life, nursing care, patient acceptance system

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I. Introduction

According to the survey of the Ministry of Health, Labor and Welfare (Japan) in 2016, approximately 312,000 people have a physical disability certificate due to visual impairment in Japan, and approximately 119,000 people in the grade1 (completely blindness) [1]. Visual impairment refers to loss of vision due to blindness and or low vision state of a person, the causes of visual impairment are many and varied; some of them are present at birth and others acquired later in life. The number of people with congenital visual impairment is decreasing, while the number of adventitious visually impaired person who is developed at the middle of age due to age-related eye disease is increasing because of super-aging society compared to the survey twenty years ago. Japanese survey estimated that the patients aged >20 and >60 accounts for 97.4% and 72.3%, respectively [2], and more than half of the people with visual impairment were aged 70 years or older. Glaucoma is the leading cause of acquired visual impairment, followed by retinitis pigmentosa, diabetic retinopathy, and age-related macular degeneration [2-3]. These major causes comprised three-quarters of all visual impairment [2]. In addition, those who have the physical disability certificate are considered to be part of the entire visually impaired person, suggesting that it will continue to increase. Therefore, it is estimated that the number of actual visually impaired patients will reach two million by 2030 [4].

Visual impairment markedly reduces the quality of life (QOL) and greatly affects an individual's capacity to maintain social relationships and take part in education or work. It is said that 80% of people's information input is from vision, and the loss of visual function greatly affects a person's life [5-6]. QOL is assessed in terms of physical status and functional abilities, psychological status and well-being, social interactions, economic and/or vocational status, religious and/or spiritual status [7-9]. One of the fundamental issues in the area of assessment of quality of life is to determine what is important to the individuals' quality of life. The score of Health-related Quality of Life (HRQOL) [10-11] and visual-related Quality of Life (VRQOL) using NEI VFQ-25 (The 25-item National Eye Institute Visual Function Questionnaire) [12] are estimated by the items of not only the difficulty of seeing, but also aspects such as mental health and social function. Because, conventional clinical measures such as visual acuity and visual field assessments do not fully capture the influence of visual disability on daily visual functioning and on abilities to perform activities of daily living that are valued by patients. In particular, HRQOL is thought to be closely related to extending healthy life expectancy [8], and is considered to be an important indicator of the health promotion of the elderly people [13]. Subjective evaluation of HRQOL and health status is recognized as an important tool in the assessment and treatment of visually impaired patients [11]. Visual impairment has a substantial impact on the quality of life, compared with other chronic diseases [11]. Impaired vision significantly reduces activities associated with participation in society and religion, mobility, recreational and daily living etc.

Vision loss in later life contributes to limitations on physical activity, reduces independent mobility, causes vision impairment and falls, imbalance, entails risks of hip fracture, mortality and underlines the need for community and/or family support. People who develop visual impairment at the middle of life affect change in the quality of physical, psychological, mental, social and economic aspects [14], and the quantitative study by the World Health Organization (WHO) revealed that the score of all aspects are negatively affected their QOL [15]. In particular, adventitious visual impairment causes mental problem accompanied by a deterioration in mental health due to social isolation and anxiety, thus increasing the risk of developing depression [16]. This psychological effect was also found to be significantly stronger in people with blindness than with low vision, and in acquired low-vision people than congenital [16-17]. In this way, there is a difference in the inconvenience in daily life between those with adventitious visually impaired individuals and those who have developed at an earlier stage of life who have been trained and instructed in special education, etc. in childhood [18]. It is important for communities to reduce their specific health anxiety and improve their HRQOL due to visual impairment and visits to medical facilities (including hospitals, clinics, and prescription pharmacies).

When considering improvement of QOL, the ultimate goal of rehabilitation for the visually impaired needs to satisfy "a condition that is physically, psychologically, socially, and physically satisfied." However, in reality, psychological and mental problems tend to be neglected, and their effects are not sufficient [19]. Therefore, there is an urgent need to develop an intervention method and to establish a medical institution with an intervention-type support function that sufficiently promotes psychological adaptation.

In recent years, nurse-led interventions for disease management programs have become increasingly important, including symptom management, relieving and supporting psychological and social stress, lifestyle changes, health education, personalization support, and follow-up support. It was recognized as contributing to comprehensive care [20]. In addition, a survey of the elderly person showed that Nurse-led intervention was effective in improving depression/anxiety symptoms and HRQOL [21]. In this way, it was shown that the nurse-led strategy improved the quality of life of various diseases (cancer, diabetes, etc.) [22]. The importance of nurses who are engaged in both medical care and nursing care for the visually impaired people who are expected to have the role of performing care related to patient QOL is increasing. Therefore, it is very important to accumulate knowledge of nursing care for the visually impaired, but there is still no previous study that provides insights aimed at improving their QOL of the visually impaired, and a sufficient medical system has not been established yet.

II. Objective

The purpose of this study is to focus on the persons who developed visual impairment at the middle of life living in a community, and to evaluate the actual situation of health anxiety in daily life and the acceptance systems at local medical institutions through semi-structured interviews. In addition, we also aim to disclose the current and the actual situation of problems, and to suggest nursing care system to improve their HRQOL in line with the medical system in Japan.

III. Subjects and Methods

1. Patients

In this study, as a typical example of the visually impaired, we surveyed those who had developed visual impairment at the middle of life (adventitious visually impaired person). Table 1 summarized the typical information of the respondents. Two persons living alone (living alone) and three persons living with family members as caregivers (living together) were enrolled in this study. All patients were suffered from visual impaired by acquired. Only one patient had complication.

<Table 1> Patients characteristics

Patient	Gender	Age	Vision	Cause disease	Resident Style	Compli-cations	Onset time	Outing frequency
A	Male	52	Binocular blindness	Glaucoma	Living alone	No	Adult	Every day
B	Male	59	Binocular blindness	Glaucoma	Living together	No	Adult	Almost Everyday
C	Female	67	Binocular amblyopia	Retinal detachment	Living alone	Yes	Adult	Every other day
D	Female	62	Binocular blindness	Retinitis pigmentosa	Living together	No	Adult	Two times per week
E	Female	70	Binocular blindness	Measles sequelae	Living together	No	Childhood	Three times per week

2. Interview overview

We conducted a semi-structured interview survey focusing on health anxiety in daily life and the acceptance system in medical institutions. The interviews were conducted with meeting and telephone with the prior consent of the applicant, and was intended to be used as academic papers for publication. All respondents fully understood the purpose of the study and were extremely cooperative throughout.

3. Analysis method

We qualitatively summarized the words and characteristic sentences from the verbatim list. The obtained answers were counted by category. For the quantitative statistical analysis, the number of answers for each category obtained in the interviews was calculated as ground total by using Microsoft Excel 2013 statistical software.

4. Ethical considerations

This study was conducted with the approval of the Kanto Gakuin University Ethics Review Committee (application number: H2019-1-6). Prior to the interview with the surveyees, all participants were explained regarding to the study purpose, study method, expected results, the benefits and disadvantages of the surveyees, any invasive intervention at the time of the survey, voluntary participation, data protection, methods of publication of study results and privacy protection.

IV. Results

1. Health anxiety in daily life

Table 2 summarizes the answers of health anxiety in daily life obtained from the patients. All five patients responded cooperatively.

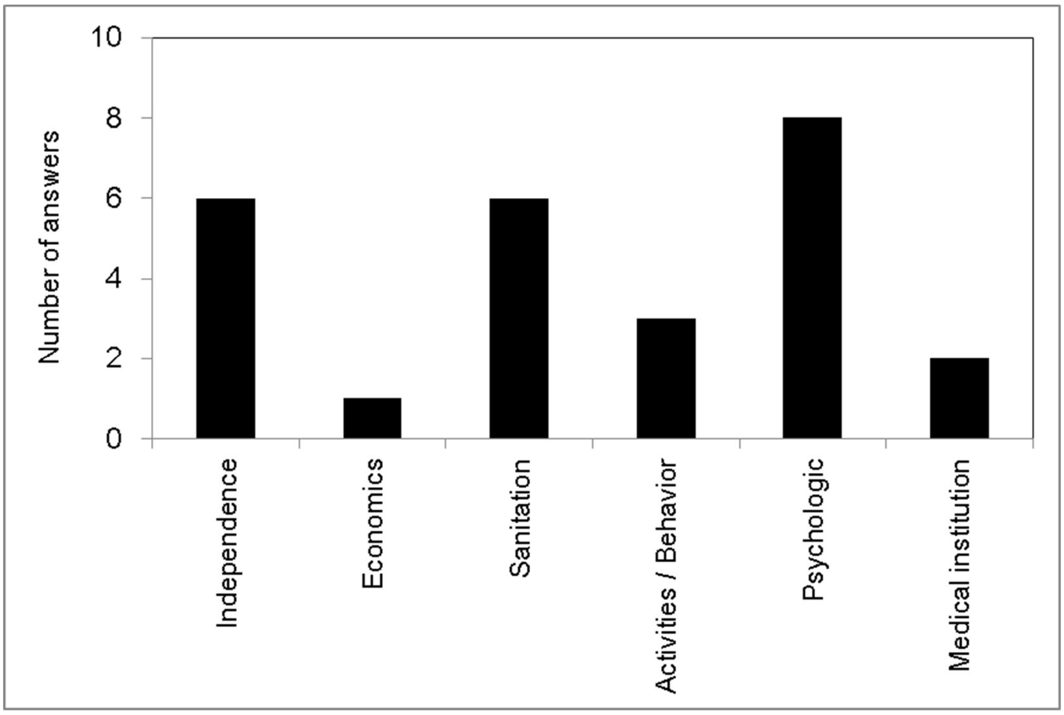
As shown in table 2 and figure 1, the results of this survey indicate that there are many psychological concerns. In addition, concerns of independence and sanitation were also high, and this anxiety subsequently cause of mental problems. Thus, it obviously shows that psychological anxiety cause by invisible.

In terms of hygiene, anxiety about risks such as digestive tract infections due to eating habits and contact when going out were characteristically indicated. When using toilets in public place or medical institutions, they had to walk while touching doorknobs, handrails, and walls. However, this act may high risk factor of infection because that may be contaminated with viruses and fungi.

In terms of psychological aspect, the influence on independence and self-esteem were strongly pointed out. Even helpers and families who completely understand each other's thoughts affected their shame and self-esteem by checking and collecting their urine and stool. In addition, we can recognize that they have hesitation to ask support for helper regardless of living alone and together. All subjects in this study are acquired visual impairment, and lived independently before onset. Although there may be different emotional changes and processes on acceptance for the onset of visual impairment, these patients tend to be sense of loss because they feel like they can't anything more than before. In the case of person living with others, they answered that there were few problems in their daily lives, but on the other hand, they also found that the burden on the supporting family was big. On the other hand, those who live alone have clearly greater distress in their daily lives, and their loneliness has greatly affected psychological problem because they cannot talk to others about their anxieties.

<Table 2> Comments on patient anxiety

Aspects	Comments
Independence	・It was very difficult to live without any helps from a helper for many things such as moving, reading, writing, cooking, shopping, cleaning and washing. (Living alone) ・Because the variations of cooking were limited, I tended to eat similar meals. (Living alone) ・When tendonitis of the elbow joint was developed, it was difficult to apply a cold compress to the affected area with one hand. (Living alone) ・I didn't know the box or the amount to take even if I wanted to take cold medicine such as a prescription medicine. (Living alone) ・I think that the degree of distress was low because the spouse performed all of the daily chores. (Living together) ・It was difficult to check urine and stool color as a health self-check and to collect urine and stool at home as instructed by a doctor. (Living alone and together)
Economics	・I was unable to work and had to move to a municipal house to live with low income. (Living alone)
Sanitation	・It was difficult to notice the decay of foodstuffs, and even if mold was breeding on bread and the like, it could not be noticed and sometimes eaten. (Living alone) ・Infection of tinea versicolor was left for a long time until the helper noticed. (Living alone) ・I did not notice my own hyperemia in the eye. (Living alone) ・During menopause, hospital visits were delayed due to unaware of irregular bleeding. (Living together) ・Even when I tried to wash my hands, I couldn't wash even the dirt that healthy people could recognize. (Living alone) ・When going out, there were concerns about hygiene such as fingers and handrails due to handrails in public toilets and contact with walls. (Living alone and together)
Activities / Behavior	・I was afraid to go out because of my experience of falling and breaking my leg. (Living alone) ・I rarely went out, and often watched TV alone at home. (Living alone) ・When my spouse was absent, I often needed to go to a medical institution alone. (Living together) ・I want to karaoke, but I have no friends, then I can't. (Living alone)
Psychologic	・I used to clean it before because I liked it cleanliness, but now I can't see any dirt, so I stopped cleaning myself. (Living alone) ・I always depend on my spouse, and there is a feeling of loss that I can't do anything. (Living together) ・I know information about Coronavirus Disease 2019 (COVID-19), but I am worried that it is easy to get infected because there were many chances to touch on railings and walls. (Living alone) ・If I can see, I can do the same as a sighted person, but there is irritation that I cannot do it alone because I can't see. (Living together) ・I was taking stabilizers because I was afraid that I couldn't see. (Living alone) ・ I can't help feeling lonely because my spouse died. (Living alone) ・I want to go out and chat with people, but I feel lonely because I cannot go out freely. (Living alone) ・I was ashamed to ask a helper or spouse to collect urine or stool. (Living alone and together)
Medical institution	・When I visited a clinic with a guide dog, I was declined the consultation because dog is not permit to enter the clinic. (Living together) ・It was difficult to understand the doctor's explanation after receiving the image diagnosis. (Living alone)



<Figure 1> Answers frequency on each aspects

They had less expectation of having a partner in the rest of their life, and thus they have great mental burden than healthy people or visually impaired person living with helper.

In terms of behavioral impacts, it was found that appropriate assistance led to improve their health. Regarding the pain of tendonitis, it was difficult to take actions alternative way such as cooling and hot compress as self-control for pain relief other than cold compresses. This means that self-care actions could not be taken by incorporating information about health from the viewpoint of health literacy, and this was a very disadvantageous situation for maintaining a healthy state. In addition, there was fear when a COVID-19 disease or influenza virus infection expanded, and they felt that information sharing was essential.

Furthermore, if they want to consult a medical institution due to sudden illness, it is not easy to request a temporary or emergency helper to accompany. Therefore, there was a risk of worsening due to delay visit to hospital. Originally, they had no limb / trunk problems, but tended to have a narrow range of action due to visual impairment, muscular weakness due to lack of exercise, and a decrease in bone mineral density due to reduced opportunities to go out. In this circumstances of life style, they have high risk suffer from lifestyle-related illness and frailty.

2. Anxiety about acceptance system at medical institutions

Significant confusion was observed in the inadequate system of medical institutions, including the lack of care for healthcare workers, which could lead to medical distrust from visually impaired person. Patients often went to the hospital alone by taxi when needed. However, it was disclosed that medical institutions did not have enough staff to provide safe and secure guidance. Most taxi drivers can provided guidance to the hospital entrance, but it was extremely difficult for visually impaired person to move from the entrance to the reception / waiting room, treatment room, and examination room by themselves.

For example, in a dental treatment room, there are many devices in a narrow place, so when entering and leaving the room, it is always dangerous to hit somewhere, touch sharp objects, hit the head with a lighting equipment, etc. In addition, they experienced fear of "what will be done now" and anxiety of "how much time is spent in a place where strange sound" due to the lack of explanation at the time of examination/treatment, especially in CT/MRI examination. Furthermore, the explanation of the image diagnosis results from the doctor was almost the same as the explanation for sighted people, or it was difficult to understand because the explanation was omitted, and the way of explanation for the visually impaired was not devised. At out-of-hospital prescription pharmacies, it was difficult to distinguish multiple prescribed eye drop containers because they have the same shape, and multiple different eye drops must be applied to the left and right eyes.

In situation without sufficient explanation, he had to rely on his family and helpers for medications. Patients claimed that despite the fact that there are multiple prescription drugs for oral medicines, they have similar shape of the sheet, making it difficult to distinguish the medicine. Thus, it became clear that there were many psychological stresses caused by the inadequacy of the medical institutions' acceptance system.

V. Discussion

The results of this study have revealed that psychological effects are particularly large in persons with adventitious vision impairment. The mechanisms of QOL decline in visual impairment were explained as being caused by a change in four items including (1) limiting daily activities, (2) socio-economic impacts such as income and financial burden, (3) social impacts such as social integration and perceived support, (4) psychological effects such as self-efficacy [23]. In Japan, the proportion of visually impaired people in the total disability is relatively rare, and it is difficult to link to rehabilitation, employment support, and community life support. In addition, research on assisting people with adventitious disabilities has been focused on people with physical disabilities and has not adequately addressed the needs of people with adventitious visual impairment [24].

On the other hand, in the United Kingdom, which is an advanced country for disabilities, there is a key facility (Royal National Institute of Blind People (RNIB), which leads to independent living in the community immediately after blindness of patients. The RNIB provides (1) visual impairment rehabilitation, (2) psychological support, (3) vocational rehabilitation, (4) employment support, (5) inclusive education services, and other support services [23]. For the adventitious visually impaired person, not only improves visual function but also psychosocial integrated rehabilitation approach that provides support through counseling and interventions are needed. However, there are not enough programs yet.

One of the most effective treatments in the psychological field is cognitive behavioral therapy (CBT) [25]. CBT group interventions and counseling have been reported to improve mental health in the visually impaired [26-27]. Recently, it has been shown that CBT with Nurse-led intervention improved depression symptoms [28-29]. It has also been shown clinically that mindfulness training was effective in reducing depression in the visually impaired [30]. Mindfulness contributes to improving the mental well-being of the visually impaired by increasing the sense of intra-person, interpersonal, and transpersonal "connections" and it is thought to be related to the increase in self-awareness of emotional, social, and physical health. In this way, CBT and mindfulness practice are expected to have an effect on the visually impaired persons like surveyed in this study, and could be a focus for establishing nursing care system in the future.

1. Consideration of the role of nurses for the visually impaired person

Although the number of elderly people with visual impairment including low vision is expected to increase in the future, specialized facilities that provide information and care to them are limited. It is easy to imagine from the results of present study that there are not a few patients who have living without getting to the appropriate information. It is not possible to deal with the visually impaired with only a limited number of specialized institutions and professions, and it is necessary to seek cooperation with many multidisciplinary occupations that provide medical care in the community. Nurses are at the forefront of this, and it is thought that it is necessary for nurses to establish a cooperative system with clinicians, occupational therapists, care managers and so on. Therefore, we suggest the following nursing care recommendations for the visually impaired person.

1) Respect individuals

It is important to communicate effectively, and most importantly, to recognize visually impaired patients as people with the same needs and emotions as those with normal vision. It is also essential to respect individual needs and to recognize and understand how best to address them. In such a case, it is necessary to respond carefully to the patient without interrupting the patient's talk.

2) Understand the psychological stage

It has been reported that visually impaired persons have at least five stages of disability acceptance [14]. Therefore, it is necessary to recognize the age of onset of low vision, understand needs, and treat care for patients with visual impairment carefully and individually.

3) Recover patient confidence

The goal of society is to help the visually impaired patients to integrate by supporting everything they do, and restoring self-confidence is one of the most important tasks for them. Family and helper support the visually impaired person, which on the other hand, it sometimes lead to loss of patient's confidence. Similarly, the involvement of nurses should be kept at a moderate level so that personal confidence is not compromised.

4) Understand the situation

If any subjective symptoms occur, medical staff must fully understand that visually impaired persons must rely on medical institutions, especially because self-control is difficult. It is also important to feel the inconvenience of the patient and to make the environment easy to talk about. In addition, she will act as a spokesman for the patient and try to explain it to a specialist and provide appropriate responses.

5) Sufficient explanation

It will provide basic and very important information on symptoms, such as how the visual impairment progresses specifically and how long it will take. Therefore, nurses should be aware that they are in the position to most strongly define "how to accept disabilities" for blind people. Nurses also advises on how to self-manage the medicine.

6) Reduce the burden on family members and caregivers

There is a need to reduce the stress of supporters due to the increasing need for family and community support. In the case of elderly patients, dementia may also occur. In such a case, if it is not possible to sufficiently explain one's own symptoms, information on family members and caregivers is important. Listen to vague information from family and caregivers, such as "something different than usual." In addition, family members and caregivers should confirm their goals of “inferring the patient's view of life and values” and strive to reduce the burden on each other as much as possible. Of course, it is also important to take a neutral position so that family relationships do not worsen.

7) Beware of complications

It is conceivable that life problems will differ depending on the presence or absence of complications. Elderly people will suffer further decline in HRQOL due to the overlap with visual impairment, in addition to reduced physical fitness, reduced resistance to disease.

In addition, when a diabetic patient has visual impairment, self-management such as diet, exercise, blood glucose self-measurement, and insulin self-injection is greatly impeded, and the support of an assistant is indispensable. In addition, the risk of aspiration and oral care should be carefully monitored to ensure early detection of the disease.

8) Enlighten nurse education

Given that the lack of visual information is a psychological and physical barrier to consulting medical institutions, it can be pointed out that there is great room for consideration of feedback to healthcare professionals in education. It is also important to keep daily nursing records for nursing education.

9) Increase awareness of belonging.

People with visual impairment have strong self-esteem, participation in group sessions is useful for improving individual behavior, and ensuring mutual communication is important. Therefore, it is recommended that you consult for telephone support, online support, and interview support. In addition, we provide information on various services and rehabilitation that can be received as a visually impaired person. Also, let them know that there are people who are nearby.

10) Countermeasures against infectious diseases

Visually impaired persons were found to be at higher risk for contact and droplet infections. For this reason, it is necessary to provide information on the occurrence of infectious diseases and accurately communicate what to be careful not to give as anxiety. In addition, cleaning and wiping should be performed frequently.

2. Welfare issues

Despite the fact that the population ratio of the grade1 of physical disability certificate due to visual impairment is about 1 in 1,000, it is extremely rare to see visually impaired people who go out with white sticks in towns and public transportation etc.

In Japan, there are not many medical institutions where visually impaired persons are allowed to enter with guide dogs. Psychological problems, inadequate barrier-free services, and inadequate welfare policies are assumed as factors not to go out, but it is thought that the “stay-at-home” due to reduced opportunities for social participation can lead to a deterioration in mental health.

In the future, as the entire Japanese society is focusing on barrier-free preparations for the Tokyo Paralympic Games, reviewing and improving the medical system at medical sites in Japan is an urgent issue. There is also a need to develop a smartphone that utilizes AI and is easy for visually impaired people to use. Furthermore, it can be said that Japan has a high risk of natural disasters such as earthquakes and eruptions, and it is necessary to make effective use of Braille and voice guides in order to adequately prepare emergency communications and environmental measures.

3. Study limitation

It was very difficult to collect the large number of visually impaired persons who will be the subjects of this study. As mentioned in this article, having a visual impairment at the middle of life can be expected to have various different difficulties depending on the age at onset, gender, social position, etc.

Therefore, it is necessary to examine in more detail the bias of congenital and acquired, gender, and region in future research. In addition, quantitative analysis before and after intervention is needed to measure the improvement of QOL. For example, with regard to HRQOL, the use of The Nottingham Adjustment Scale Japanese version (NAS-J), a scale that measures rational adaptation including the seven psychological variables (anxiety-depression, self-esteem, attitude to disability, locus of control, acceptance of disability, self-efficacy and attributional style), is effective [31]. We also consider that low vision quality-of-life questionnaire (LVQOL) [32] and Depression Anxiety Stress Scales (DASS) [33-34] are useful for measuring VRQOL and mental health scales, respectively.

Ⅵ. Conclusion

This study disclosed the existence of various factors of health anxiety in daily life that adventitious visually impaired person living in a community, and some of the inadequacy of the acceptance systems at medical institutions. This study has provided a lot of insights towards to examine in details the nursing care practice needed to improve HRQOL for the visually impaired persons.

Conflict of interest

There are no companies with conflicts of interest to disclose in connection with this study.

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ORIGINAL ARTICLE

Development of the Disability Awareness Program (DAP) scale;
Centering on the Content Validity Verification

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ABSTRACT

Although disability awareness program is implemented in the medical, welfare, and education fields, the effectiveness of disability awareness programs has not been clarified. If a disability awareness program outcome evaluation scale that can be used across fields is developed, it is possible to quantitatively clearly indicate what program content was implemented and what effect was obtained. This study verifies the content validity in order to develop the Disability Awareness Program (DAP) scale. In this study, in order to develop the DAP scale; Prepared a scale (draft) and construction concepts was examined by experts and students (the Content Validity Verification). As a result, a scale of 3 areas and 15 items was developed. The scale consists of three areas: "Awareness of basic human rights", "Awareness of disability", and "Awareness of diversity" and the items include the elements of "Disability Rights Convention", "the International Classification of Functioning, Disability and Health ", and "diversity".

＜Key-words＞
scale development, disability awareness program, outcome, teacher training

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I. Introduction

Social issues related to Autism Spectrum Disorder and Attention deficit hyperactivity disorder are now of worldwide concern. Hert-Picciotto & Delwiche (2009) reveals that the incidence of autism rose 7- to 8-fold by A cohort study in California from the early 1990s through 2009s and mentions that major public health and educational concern (Hert-Picciotto & Delwiche, 2009). In order to solve these problems, a disability awareness program (DAP) is implemented. DAP is to increase knowledge and acceptance of disability (Ison, Mclntyre & Rothery et al., 2010). Moreover, Some of the studies on DAP have been conducted, and certain effects such as behavioral changes can be expected with respect to interventions (Chae, Park & Shin, 2019; Hayward, Fragala-Pinkhan & Scheneider et al., 2019). Although DAP is implemented in the medical, welfare, and education fields, the effectiveness of disability awareness programs has not been clarified.

DAP is conducted in various fields, but the implementation standards are not clear. Even if DAP is implemented, it cannot be said that it is really deepening the understanding of disability because it is conducted without standards. DAP has been implemented, but the scale of DAP itself has not been developed. If a DAP scale has created, the effectiveness of future disability understanding programs can be measured. In Japan, according to a survey conducted by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) in 2012, approximately 6.5% of students in ordinary classrooms may have Developmental disorders (MEXT, 2012). MEXT (2012) survey was conducted by observing teachers rather than medical experts, but the results revealed the need to respond to children with Developmental disorders in normal classrooms. DAP especially for students at the teacher training stage is necessary in Japan.

It is necessary to clarify the outcome of the DAP, to examine the components of the scale, and to carry out scientific verification. Content validity is a subjective but systematic evaluation of how well the content of a scale represents the measurement task at hand. The researcher or others examines whether the scale items adequately cover the entire domain of the construct being measured (Malhotra, Nunan & Birks, 2017). Given its subjective nature, content validity alone is not a sufficient measure of the validity of a scale, yet it aids in a common-sense interpretation of the scale scores (Malhotra, Nunan & Birks, 2017). The study that has been conducted so far on disability awareness is intervention research. However, since the concept itself has not been established, it is necessary to reconsider the concept of disability awareness. It is created as one evaluation scale by clarifying the concept of disability awareness.

Moreover, Consideration of the components should be discussed thoroughly with researchers conducting relevant studies and revised in order to strengthen the theoretical background. In addition, questions must be clarified, and words must be carefully selected based on the opinions of the people who use the scale (DeCoster, 2000).

This study verifies the content validity in order to develop the Disability Awareness Program (DAP) scale.

II. Methods

Process 1. Construct concepts and prepare a scale (draft).

We examine related prior studies and theoretically examine the evaluator of the disability awareness program result evaluation scale and the contents of the scale. By doing so, the DAP scale (draft) was created.

Process 2. Verification of content validity I (Survey for Experts)

Several considerations, such as clarity of questions and word selection, must be considered when creating a highly effective and reliable scale (DeCoster, 2000). Expert judgement confirms the appropriateness and representativeness of the content (Shimizu, 2005).

Construction concepts is examined by 6 academic personnel, and scale items are modified (in June 2019, Han and Kohara, Teruya, Shimojo, Yano and Kwon, with face-to-face interview). After the developers of the scale explained the theoretical background and structure of the scale to them, the interview survey, in June 2019. On the structure of the scale and the contents and terms of each item was held.

Process 3. Verification of content validity II (Survey for Students)

Construction concept is examined by 30 students who wish to obtain teacher license, and scale items are modified (in July 2019, 30 students, with face-to-face interview). After the developers of the scale explained the theoretical background and structure of the scale to them, the interview survey, in July 2019. On the structure of the scale and the contents and terms of each item was held.

III. Results

1. Composition of the scale

Effects of disability awareness program interventions are expected to be primarily knowledge and awareness changes (Tokuda & Mizuno, 2005). A change in consciousness is the first change in a disability awareness program (MEXT, 2017).

It is important to change teachers' awareness of disability, which leads to changes in the behavior of children (MEXT, 2017).

- **"Awareness of basic human rights" area**

Studies by Chae, Park & Shin (2019) have shown that contact-based interventions, use of materials, role-play, and human rights interventions are significantly more effective at improving attitudes toward disability than disability awareness. Shibata (2013) also states that disability understanding needs to be based on human understanding, as a representative example, and desirable to take up themes such as freedom and equality, quality of life, and human rights and rights. From these previous studies, changes in "Awareness of human rights" were set as one of area. The items were based on the Convention on the Rights of Persons with Disabilities, which provides for the human rights of persons with disabilities.

- **"Awareness of disability" area**

To understand disabilities, it is important to understand the difficulties of people with disabilities participating in society. Proper use of the environmental factors within the International Classification of Functioning, Disability and Health (ICF) will ensure appropriate policies, systems and services for health care and support, provide measurable indicators for health status and sustainable development and underpin the recognition that disability is a human rights issue (Hurst, 2003). Understanding ICF helps people with disabilities to understand social difficulties from the perspective. From these previous studies, changes in "Awareness of disability" were set as one of area. Items were prepared based on the contents of the ICF.

- **"Awareness of diversity" area**

In recent years, research has been carried out in which disability is regarded as one of diversity. In particular, the employment field, disability is regarded as one of diversity, and approaches are taken from the viewpoint of diversity control (Nafukho, Roessler & Kacirek, 2010). 67% of U.S. organizations report implementation of diversity training (Kulik & Roberson, 2008: Kalinoski, Steele-Johnson &Peyton et al., 2013). While much attention has been paid to issues of gender, race/ethnicity, and sexual orientation in the workplace, diversity training has more limited focus on persons with disabilities (Bezrukova, Jehn & Spell, 2012).

From these previous studies, changes in "Awareness of diversity" were set as one of area. Items were prepared for the purpose of grasping disability as one of diversity by organization and individual.

Through this process, we have completed the DAP scale (draft). the DAP scale (draft) consisted of three areas awareness of basic human rights, awareness of disability, and awareness of diversity and 13 items.

2. The Content Validity Verification I (Survey for Experts)

In this study, opinions were surveyed 6 academic personnel involved in teacher training, because the purpose of the survey was to develop an evaluation scale for used by students belonging to the teacher training course.

There were 2 men (33.3%) and 4 women (66.7%). There were 3 teachers who obtain an elementary school teacher's license (50.0%), 2 teachers who obtain a high school teacher's license (33.3%), and 4 teachers who obtain a special need school teacher’s license (66.7%). Table 1 shows the opinions by expert and revisions for scale item.

Regarding "the Awareness of basic human rights" area, 1 opinion extracted. Expert opinion is "Since the place where persons with disabilities live is not society but the local community, the words should be changed to local community.". "The Article 19: Living independently and being included in the community" of the Convention on the Rights of Persons with Disabilities states that the rights should be guaranteed in the "community". The word used in the scale has been modified to "community" instead of "social".

Regarding "Awareness of disability" area, 3 opinion extracted. All 3 opinions were of that "definitions should be added in order to correctly reflect the concept of ICF in the scale.". According to the definition of ICF, the definition was added as an annotation for each.

Regarding " Awareness of diversity " area, 2 opinion extracted. One was the opinion, "From the research background, the consciousness change on whether the disability is regarded as one of human diversity should also be measured". We added a question that "Q12. Do you think that disability is one of human diversity?".

The other was the opinion "Since organizations and groups are different from society, questions should be separated.". So, we separated a question.

Regarding " Evaluation methods ", 1 opinion extracted. Expert opinion is that " It is difficult to change consciousness about some item. It is better to weight Q5, Q10, Q11, Q14, and Q15.". We changed score method that Q5, Q10, Q11, Q14, and Q15 are calculated as 1=2 points, 2=4 points, 3=6 points, 4=8 points, and 5=10 points.

3. The Content Validity Verification II (Survey for Students)

Using the modified to scale, opinions ware surveyed 31 students who wished to acquire teacher training license. There were 11 men (35.5%) and 20 women (64.5%). 22 students wanted to obtain an elementary school teacher's license (91.0%), 9 students wanted to obtain a high school teacher's license (29.0%), and 5 students wanted to obtain a special need school teacher's license (16.1%). Table 2 shows the opinions by students wishing to obtain teacher training licenses and revisions for scale item.

Regarding "the Awareness of basic human rights" area, 1 opinion extracted. Student opinion is " If I think that people with disabilities can lead independent lives if they can borrow help: how do I evaluate Q1?". If it is a "help" within the scope of social services, it should be regarded as an independent life because receiving social services is a right

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itself. So, explanation was added.

Regarding "Awareness of disability" area, 1 opinion extracted. Student opinion is " Does the "environment" include social services?". Added an annotation that "Environment means the social environment such as social systems and social services (medical care, education, etc.)."

Regarding " Awareness of diversity " area, 1 opinion extracted. Student opinion is " I have never been involved with someone with a disability. I don't know how to rate Q13.". The explanation was added as follows: If you have difficulty answering, please choose "3…Neither agree nor disagree ".

<Table 1> Results of discussions by experts on the terminology and content of questions

Expert opinions		Before revision	After revision
Awareness of basic human rights area	Since the place where persons with disabilities live is not society but the local community, the words should be changed to "local community".	「Q1. "Do you think it is difficult for people with disabilities to lead independent lives in society?"	「Q1. "Do you think it is difficult for people with disabilities to lead independent lives in their local communities?"
Awareness of disability area	In order to correctly reflect the concept of ICF, the definitions of "body function and structure" in the scale should be stated.	the DAP scale does not mention this.	Add an annotation that "*Body function are functions such as movement of hands and feet, visual and auditory functions, and visceral functions. Body structures are structures such as parts of the hands and feet and parts of the heart (valves) ".
	In order to correctly reflect the concept of ICF, the definition of "activity" in the scale should be stated.	the DAP scale does not mention this.	Add an annotation that "*Activities refer to activities necessary for daily living activities (walking, etc.), housework, occupational activities, and leisure activities."
	In order to correctly reflect the concept of ICF, the definition of "participation" in the scale should be stated.	the DAP scale does not mention this.	Add an annotation that "*Participation means playing a role at home, in the workplace, and in the local community."
Awareness of diversity area	From the research background, the consciousness change on whether the disability is regarded as one of human diversity should also be measured.	the DAP scale does not mention this.	Add a question that "Q12. Do you think that disability is one of human diversity?"
	Since organizations and groups are different from society, questions should be separated.	Do you think that a person with disabilities belongs to an organization, group, or society is one factor in development?	Separate a question "Q14. Do you think that the presence of persons with disabilities in an organization or group is a factor in development for the organization or group?" and "Q15. Do you think that the participation of people with disabilities in society is a necessary element of social progress?"
Evaluation methods	"It is difficult to change consciousness about some item. It is better to weight Q5, Q10, Q11, Q14, and Q15.".	All items were calculated as 1 = 1 point, 2 = 2 points, 3 = 3 points, 4 = 4 points, and 5 = 5 points.	Q 5, Q10, Q11, Q14, and Q15 are calculated as 1=2 points, 2=4 points, 3=6 points, 4=8 points, and 5=10 points.

<Table 2> Results of discussions on the terms and content of questions

Students Opinion		Before revision	After revision
Awareness of basic human rights area	If I think that people with disabilities can lead independent lives if they can borrow help: how do I evaluate Q1?	Non-applicable	The explanation was added as follows: If the “help” you think of is “social welfare,” think that you should think live an independent life. Because "Social welfare" is something everyone receives.
Awareness of disability area	Does the "environment" include social services?	"*Environment means the physical environment of facilities and equipment, and the social environment such as the human environment related to people's attitudes."	Add an annotation that line "*Environment means the physical environment of facilities and equipment, the human environment related to people's attitudes, the social environment such as social systems and social services (medical care, education, etc.).".
Awareness of diversity	I have never been involved with someone with a disability. I don't know how to rate Q13.	Non-applicable	The explanation was added as follows: If you have difficulty answering, please choose "3…Neither agree nor disagree ".

From the above process, the DAP scale has been revised to 15 items, 3 areas of "Awareness of basic human rights", "Awareness of disability" and "Awareness of diversity".

IV. Discussion

In this study, in order to develop the DAP scale, we verified the content validity. Constituent concepts is area of the DAP scale (draft). It was examined and modified construction concepts of DAP scale by experts and student. In Process 1, it was clarified that it is necessary to awareness change that "Awareness of basic human rights", "Awareness of disability", and "Awareness of diversity" as the outcome of the disability awareness program. In Process 2 and Process 3, There were suggestions from experts and students regarding the concept of the DAP scale. Opinions included adding annotations to reflect the ICF concept and adding definitions for social services. The DAP scale was revised based on those suggestions. Suggestions for scale were added, such as adding annotations, selecting words, and adding items. Based on the research background, we adopted some reasonable proposals, changed the DAP scale, and completed it. As a result, a scale of 3 areas and 15 items was developed. The scale consists of three areas: "Awareness of basic human rights", "Awareness of disability", and "Awareness of diversity" and the items include the elements of "Disability Rights Convention", "ICF", and "diversity".

the Disability Awareness Program (DAP) scale

- For each of Q1-Q15 items, select the number (1-5) of the item that is deemed most appropriate.
- The evaluation numbers are 1= "Strongly disagree", "2= "Disagree", "3= "Neither agree nor disagree", "4= "Agree a little", and 5= " Strongly agree ".

Total score （①+②+③） /100

Awareness of basic human rights

		Strongly disagree	Disagree	Neither agree nor disagree	Agree a little	Strongly agree
Q1	Do you think it is difficult for people with disabilities to lead independent lives in local communities?	1	2	3	4	5
Q2	Do you think it is difficult for persons with disabilities to perform decision-making?	1	2	3	4	5
Q3	Do you think it is difficult for children with disabilities to learn in regular classes?	1	2	3	4	5
Q4	Do you think it is difficult for people with disabilities to work?	1	2	3	4	5
Q5	Do you think it is difficult for people with disabilities to engage in political and public activities?	1	2	3	4	5

① Total number of "Awareness of basic human rights" /30

Awareness of disability

Q6	Do you think that a health condition affects disability?	1	2	3	4	5
Q7	Do you think that the environment surrounding individuals * has an impact on disability? * The environment refers to the physical environment of facilities and equipment, the human environment related to people's attitudes, and the social environment such as social systems and social services (medical care, education, etc.).	1	2	3	4	5
Q8	Do you think that the gender, age, values, and lifestyle of individuals influence the disability?	1	2	3	4	5
Q9	Do you think that physical and Body function and structure * in individuals contribute to disability? * Body function are functions such as movement of hands and feet, visual and auditory functions, and visceral functions. Body structures are structures such as parts of the hands and feet and parts of the heart (valves).	1	2	3	4	5
Q10	Do you think that the limitation of activities* in individuals is a factor of disability? * Activities are activities for daily living activities (walking, etc.), housework, occupational activities, and leisure activities.	1	2	3	4	5
Q11	Do you think that the constraints on participation* in individuals are a factor of disability? * Participation means playing a role at home, in the workplace, and in the local community.	1	2	3	4	5

② Total number of "Awareness of disability" /40

Awareness of diversity

Q12	Do you think disability is one of human diversity?	1	2	3	4	5
Q13	Do you think that getting involved with people with disabilities will lead to growth for you?	1	2	3	4	5
Q14	Do you think that the presence of persons with disabilities in an organization or group is a factor in the development of the organization or group?	1	2	3	4	5
Q15	Do you think that the participation of people with disabilities in society is a necessary factor in the progress of society?	1	2	3	4	5

③ Total number of "Awareness of diversity" /30

Scoring method
【1】. Calculate to 1 = 1point, 2 = 2points, 3 = 3points, 4 = 4points, and 5 = 5points except for items not applicable to 【2】and【3】.
【2】. The area of "Awareness of basic human rights" (Q1-Q5) are reversed items. Calculate 1 = 5points, 2 = 4points, 3 = 3points, 4 = 2points, and 5 = 1point.
【3】. The five items Q5, Q10, Q11, Q14, and Q15 are weighted items. Calculate as 1 = 2points, 2 = 4points, 3 = 6points, 4 = 8points, and 5 = 10points.

For example;
if you give 1 point to Q5,
According to【2】, Calculate 1 = 5points; According to【3】, Calculate 5 points = 10 points. Finally, if you give 1 point to Q5, it will be calculated as 10 points.

To our knowledge, this study is the first measure to evaluate disability awareness programs. The scientific completion of the DAP scale was possible to lead to the implementation of effective disability awareness programs. Content validity alone is not a sufficient measure of the validity of a scale (Malhotra, Nunan & Birks, 2017). Since the content validity is based on the subjective opinions of the respondents, it is necessary to verify the reliability and the validity of the constituent concepts by using scale and collecting longitudinal data (Hair, Black & Babin et al, 2009). By verifying content validity, it became a clarification of these questions and words and the concept of disability awareness. The DAP that have been held so far have included doing lessons about disability, building relationships with people with disabilities, and experiencing handicap using eye mask (Takahashi, Mimura & Nakaie, 2016). By evaluating these efforts with DAP, more effective programs can be extracted. It is necessary to more clearly evaluate DAP by using a scale.

There are several limitations of this study. That is a verification of reliability and construct validity. The most used method is Cronbach’s Alpha, which measures reliability and internal consistency (Sarmento & Costa, 2019). A commonly accepted rule for describing internal consistency using minimum Cronbach's alpha is 0.7 or higher (Cronbach,1951). Moreover, two common techniques used in scale development studies to verify the validity are Confirmatory Factor Analysis (CFA) and Exploratory Factor Analysis (EFA) (Orcan, 2018). CFA is a technique used to estimate the measurement model. It seeks to confirm whether the number of factors (or constructs) and the loadings of observed (indicator) variables on them conform to what is expected on the basis of theory. Indicator variables are selected on the basis of theory, and CFA is used to see if they load as predicted on the expected number of factors (Malhotra, Nunan & Birks, 2017).

In conclusion, by verifying the reliability and validity of the construct, the DAP scale developed in this study will be completed as a scientific study.

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SHORT PAPER

Medical and Care Collaboration between Nurse and Care-worker in a ‘Kantaki’ Setting;

Time-sampling Study

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ABSTRACT

Background: An increasing number of clients with special health care needs receive long-term mechanical ventilatory support at home. This study presents the types of care given to old-aged clients with special health care needs in a Japanese ‘Kantaki’ home-care institution.

Methods: The care given was followed closely using 24-hour audio-video recording.

Results: The type of care given by the nurse alone was mostly medical care, by the care-worker alone was assistance in eating, toilet, and medical care, and the care given by both together was bathing.

Conclusion: Findings are first direct evidence quantifying the type and respective amounts in such a care home for the old-aged persons with special health care needs.

＜Key-words＞
home care, kantaki, group home, home mechanical ventilation, special health-care needs.

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I. Introduction

Japan has the highest proportion of old-aged people in the world and has an increasing number receiving long-term home mechanical ventilation (HMV) in their home.[1] Accordingly, the Japanese Nursing Association has strongly promoted multifunctional long-term care in small group homes known as Kango Syokibo Takinou gata Kyotakukaigo abbreviated as 'Kantaki', which now employ both nurses and care-workers in order to provide comprehensively care (including daytime care, visiting the client at their own home, and overnight service) for clients living at their own home with special health-care needs [2] Basically, the nurse is trained and registered as having a national qualification in the medical field, whereas the care-worker has a national qualification in the welfare field. They are differently trained and different qualified. Nurses and care-workers are expected to collaborate with each other in delivering care to a client with special health care needs such as HMV in a Kantaki. However, the collaboration (helping each other to carry out a care task together) required or delivered is not yet clear. Moreover, the types of care required have not yet to date been clearly identified and categorised. The findings from this pilot study identified and categorised the type of care required by old-aged clients with HMV – including both daytime and overnight care.

II. Methods

1. Participants

We selected one Kantaki which has been rated as a good service provider of special health-care needs by a government official report[3] which is the first guidelines report that sets out a model for external and internal evaluation of Kantaki. During this study period, this local Kantaki accepted four HMV clients in overnight service. Of these, we were obtained three clients and family the informed consent for audio-video (AV) recording in order to discover the types of collaboration and how much collaboration was involved between the nurses and care-workers delivering these services. The remaining one of these four declined citing shyness.

2. Data Collection

Data were collected using 24-hour-AV recording of three participants using Kantaki day-care and overnight services. We focused on recording everything within a 1-meter radius around the client throughout the 24 hours' study period. Other data were collected with consent from long-term care insurance records and included age, sex, main disease, type of home mechanical ventilation, long-term care grade[4], rank of dementia[5], and activities of daily living (ADL)[5]. We collected all data during December 2016.

3. Care Classification

The type of care being delivered was categorised according to the care code [6-7] of the long-term care insurance system in Japan. (The types of care have a code number from 111 to 999, and these are distributed within nine larger categories of care.) The Clock Model with time sampling was used in this study. The continuous 24-hours AV recording was closely investigated, and the type of care delivered in each one-minute segment was noted, by each of two independent trained expert observers, who are the authors of this report. At the same time it was noted who delivered the care;- the nurse, the care-worker, or both in collaboration.

4. Ethical Considerations

Permission for this study was obtained from the Ethics Committee of Saga Medical School Faculty of Medicine, Saga University (No: 28-12). Written informed consent was obtained from each participant, and each family also gave informed consent to participate, and agreed to the findings being published. The storage and playback of the AV recording was strictly controlled in cooperation with the administrative management staff of the Kantaki. For the awareness of other clients and their families using the Kantaki, we posted a notice describing this study, asking for their kind consideration, with our contact details, together with the implementation period, inside the Kantaki.

III. Results

1. Overview of the Direct Care

Table 1 shows basic characteristics, overview of the direct care (assistance delivered within one metre around the client). Case-A with chronic obstructive pulmonary disease (COPD) was receiving tracheostomy positive pressure ventilation (TPPV) therapy, and findings showed direct care for 291 minutes; Case-B also with COPD was receiving non-invasive positive pressure ventilation (NPPV) therapy, and received the direct care for 296 minutes; and Case-C with cervical spine injury was receiving TPPV therapy, and direct care for 375 minutes.

<Table 1> Characteristics, Overview of the Direct Care

characteristic \ client		A	B	C
Age / yrs		75	74	75
Sex		male	female	male
Main Disease		Chronic Obstructive Pulmonary Disease	Chronic Obstructive Pulmonary Disease	Cervical spine injury
Types of Home Mechanical Ventilation		Tracheostomy Positive Pressure Ventilation	Noninvasive Positive Pressure Ventilation	Tracheostomy Positive Pressure Ventilation
Long-term care grade*		care-level 5	care-level 3	care-level 5
Rank of dementia†		Ⅳ	Ⅲ	none
ADL‡		C1	B2	C1
Recording Start / date time		2016/12/20 9:50 am	2016/12/21 9:52 am	2016/12/15 10:11 am
Recording Finish / date time		2016/12/21 9:50 am	2016/12/22 9:52 am	2016/12/16 10:11 am
Total of Direct Care / mins		291	296	375
Distribution over the 9 function categories§ / mins	1.Bath, Dressing, Personal appearance	58	73	41
	2. Transfer, Movement	40	21	28
	3.Food, Nutrition and Fluid replacement	39	55	36
	4. Bathroom	27	25	5
	5. IADL support	32	33	44
	6. Social life support	0	6	0
	7. Behaviour problem	0	0	1
	8. Medical care	95	75	181
	9. Rehabilitation	0	8	39

*: the long term care grade is an index, based on the Long-term Care Insurance System of Japan, which indicates the needs for care services.[4] The greater the number, the longer it is expected to take care for the aged client (Not certified, support level 1 or 2, care level 1 to 5)

†: the rank of dementia is an index, based on the Long-term Care Insurance System of Japan.[5] Aged with dementia is set to zero (no dementia), or given as rank I to Ⅳbased on the symptoms and behaviors observed in dementia.

‡: the rank of ADL is an index, based on the Long-term Care Insurance System of Japan.[5] ADL of Aged is divided into rank J to C based on the ADL status.

§: Classification of care based on the Care Code 2006, Long-term Care Insurance System, which is divided into 9 function categories.[6]

2. The Type of Direct Care, and Collaboration between Nurse with Care-Worker

Table 2 shows the type of direct care. The type of direct care by the nurse only was mostly medical care (63.4%), by the care-worker only was administering food, nutrition and fluids (27.2%), and collaboration was bathing, dressing, and personal appearance (55.6%).

<Table 2> The Type of Direct Care, and Collaboration between Nurse with Care-Worker

	provider nurse/care-worker, and total duration for 3 clients							
	Nurse		Care-Worker		Collaboration		Others	
Type of Direct Care	mins	(%)	mins	(%)	mins	(%)	mins	(%)
1. Bath, Dressing, Personal appearance	19	(5.1)	39	(12.1)	114	(55.6)	0	(-)
2. Transfer, Movement	6	(1.6)	28	(8.6)	37	(18.0)	18	(30.0)
3. Food, Nutrition and Fluid replacement	38	(10.2)	88	(27.2)	1	(0.5)	0	(-)
4. Bathroom	1	(0.3)	61	(18.9)	4	(2.0)	0	(-)
5. IADL support	65	(17.2)	39	(12.1)	3	(1.5)	2	(3.3)
6. Social life support	0	(-)	0	(-)	0	(-)	0	(-)
7. Behavior problem	1	(0.3)	0	(-)	0	(-)	0	(-)
8. Medical care	237	(63.4)	68	(21.1)	46	(22.4)	0	(-)
9. Rehabilitation	7	(1.9)	0	(-)	0	(-)	40	(66.7)
Total mins /24hrs	374		323		205		60	

IV. Discussion

This study identified what kind of direct care and for how long was actual given in practice to old-aged clients with HMV in a Kantaki. However, several limitations exist in this study. First, we did not examine differences in care due to years of experience between nurses and care-workers. Second, we only recorded 24 hours one time; it is necessary to record the same clients several times to increase confidence in the reproducibility of the care content.

The Kantaki delivering seamless and flexible care near their house is convenient for a client with special health care needs and for their family [8]. The previous study revealed the Kantaki was concerned over how to improve collaboration among their staff [9,10]. However, there are no baseline data on what constitutes collaboration in this setting, not any report on the actual practices of a nurse and a care-worker, and the care given has not yet to date been categorised clearly in any Kantaki study.

This research is the first to present baseline data to understand what is the role of the nurse and care-worker in the Kantaki, the direct care time, and the care content.

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Short Paper

Preliminary Study on Verb Acquisition Status and Related Factors in Children with Down Syndrome

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ABSTRACT

Conditions supporting the acquisition of verbs by children with Down syndrome were investigated from early childhood to lower grades of elementary school. Moreover, correlations between verb acquisition and parents' approaches to their children were analyzed. Participants were parents having children with Down syndrome that had acquired meaningful words (n=27). The "words and grammar" version of the Japanese MacArthur Bates Communicative Development Inventories (JCDls) was administered to examine the parents' involvement. The results indicated that when the total number of expressed vocabularies exceeded 200, the rate of acquiring verbs increased even in children with Down syndrome, which indicated that "200 words" was an important criterion. Moreover, results suggested that reading and writing letters and numbers as well as teaching children the polite use of language used by parents supported verb acquisition by children with Down syndrome.

＜Key-words＞
down syndrome, verb, Japanese MacArthur Communicative Development Inventories (JCDIs)

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I. Introduction and objects

One characteristic of language development in children with Down Syndrome (DS) is a considerable delay in expressive language, compared to language comprehension and intellectual development (Ikeda, 1994b). Previous studies have indicated that DS children have particular difficulty in acquiring verbs among expressive language (Nagasaki, 1995; Loveall, Channell, Phillips et al., 2016; Michael, Ratner & Newman, 2012). However, few studies conducted in Japan have examined the acquisition of verbs in DS children in detail. Verbs are the core of sentences (Imai & Haryu, 2007). Therefore, it is important to investigate the characteristics of the acquisition of verbs in DS children to effectively support the language development of such children. Nagasaki (1995) examined the acquisition of vocabulary in four DS children, which indicated the need to examine the size of the vocabulary and verb acquisition limitations in DS children over three years of age. Children start to use the language they have acquired in daily life as their own words from early childhood to lower grades of elementary school (Okamoto, 1985). Therefore, it is important to examine the language development of DS children from early childhood to lower grades of elementary school. Moreover, DS children develop by receiving early medical treatment and education, home education, and school education (Ikeda, 1994a). Therefore, it is necessary to analyze the effect of parents' approaches to DS children's acquisition of verbs.

Based on the above factors, the present study examined conditions related to the verb acquisition in DS children from early childhood to lower grades of elementary school. Moreover, correlations between verb acquisition and parents' approaches to children were analyzed. This study is regarded as a preliminary study because the study sample is relatively small.

II. Methods

1. Participants

This study was designed to investigate expressive language. Participants were parents (n=27) of DS children (15 boys and 12 girls) between three and nine years of age, the period when meaningful words appear in children's language. The 27 children included 14 preschool children (3~6 years old), and 13 elementary school children (6~9 years of age).

2. Survey content

1) Survey on verb acquisition

We investigated verb acquisition by using "Words and Grammar" (Watamaki & Ogura, 2004) in the Japanese MacArthur Communicative Development Inventories (JCDIs), which has been used in previous studies. These studies included an examination of the composition of vocabulary in early childhood (Ogura, 2007), and a study on the acquisition of vocabulary (Iwasaki & Azegami, 2018). The “Words and Grammar” is composed of Part 1: “Words” and Part 2: “Sentences and Grammar” and each part consists of question items. Part 1: “Words” is composed of “(I). Expressive vocabulary” that includes 711 items and “(II) Ways of using words” that includes 5 items. “(I). Expressive vocabulary” includes 103 motion words, which were used in the present study to indicate verb acquisition. Part 2: “Sentences and Grammar” is composed of “A: Connections (postpositional particles and auxiliary verbs),” “B: Postpositional particles,” “C: Auxiliary verbs,” “D: Collocation utterance,” “E: The maximum length of a sentence (the number of morphemes of the three longest utterances),” and “F: The complexity of a sentence.”

The scores of “(I). Expressive vocabulary” (total score = 711), “B: Postpositional particles” (total score=25), “C: Auxiliary verbs” (total score=30), and “F: The complexity of a sentence” (total score=37), and the mean scores and standard deviations were calculated. “(I). Expressive vocabulary” included 24 sub-categories and each mean percentage of scores was calculated. The mean of the number of morphemes among three sentences written by a respondent was calculated as the “E: The maximum length of a sentence”.

2) Survey on parents’ involvement

The content of the survey on parents’ involvement with children included children’s profiles, parents’ approaches to children, and speaking to children. Ten items were used to examine parents’ approaches to children, among which 8 items were extracted from the items of “Early approaches” developed by Fujinaga, Shinagawa, Watanabe et al. (2005), and 2 items were developed based on a pilot survey. The items were scored using a four-point scale; “Always (every day) =4,” “Often (once in 2-3 days) =3,” “Sometimes (once a week) =2,” and “Rarely (once a month) =1.” Moreover, the children’s gender, chronological age, affiliation, certificate of the degree of intellectual disabilities, and the presence of complications, among others, were inquired as to the children’s profiles.

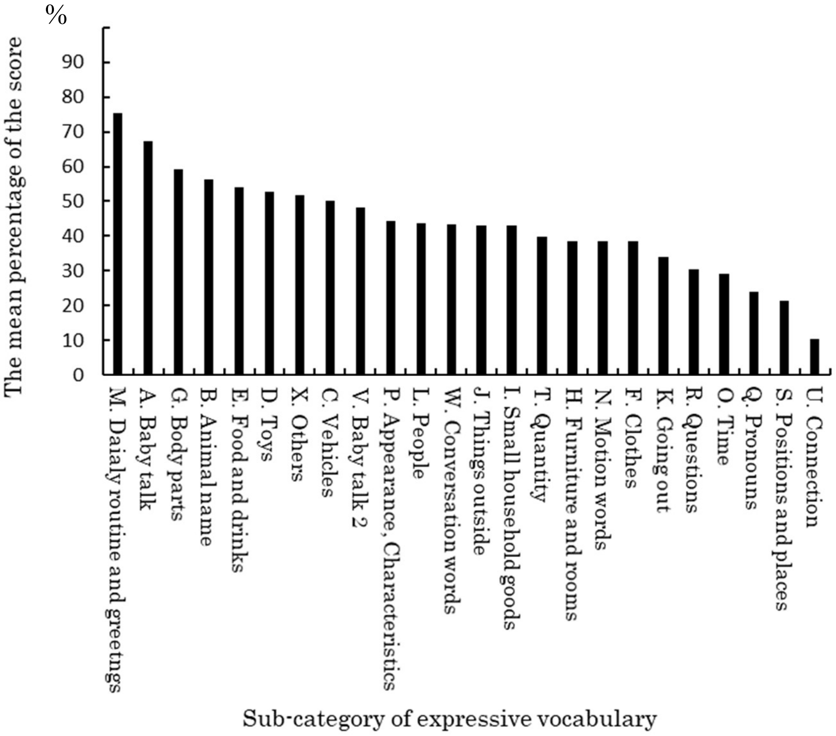
3) Ethical considerations

The questionnaire was administered anonymously. Written explanations were provided to the participants about the following issues. They were informed that they could stop responding to any question they cannot answer or do not want to answer and that they would not face any disadvantage by refusing to respond. They were also told that the survey results would only be used for the research purposes and personal information would not be published in their original form. It was regarded that participants gave their consent to participate in the survey if they responded to the questionnaire. The protection of private information was carefully considered so as not to identify any individuals.

At the time of analysis, the results of JSDIs and the questionnaire were coded in lowercase alphabet so that the personal information would match.

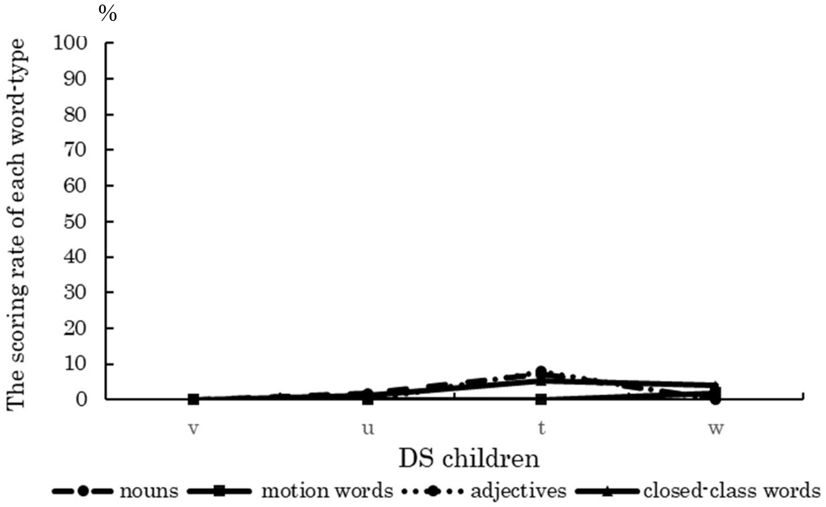
III. Results

The mean percentage of the score for each sub-category of "(I). Expressive vocabulary" of the 27 respondents are shown in descending order in Figure 1. The mean percentage of scores for all the sub-categories was 45.8% and that for "N. Motion words" was 38.4%, which was ranked 17th among 24 sub-categories.

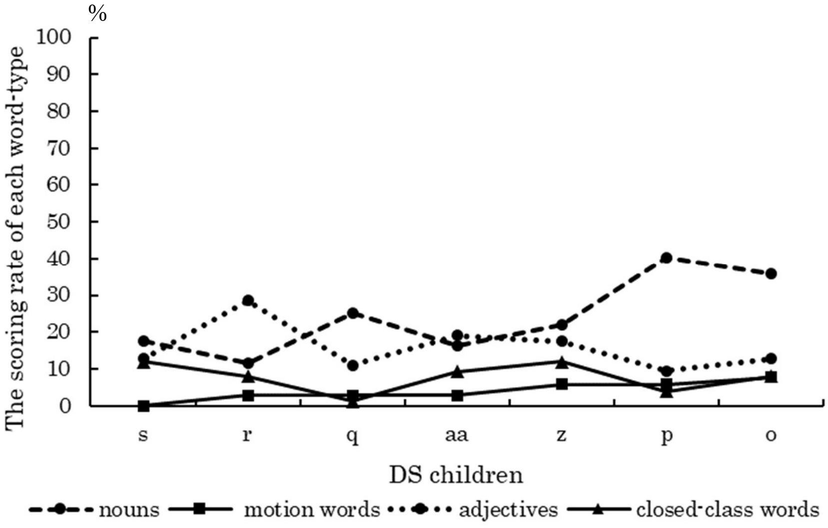


<Figure 1> The mean scoring rate of each sub-category of expressive vocabulary

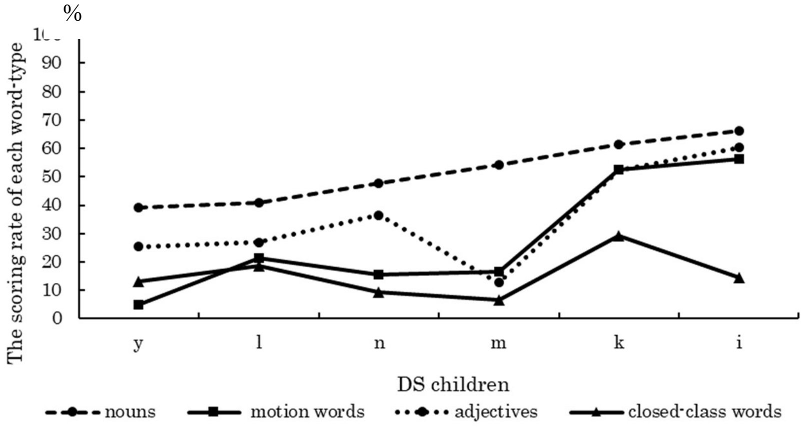
We examined the correlation between the number of expressive vocabulary words and the composition of vocabulary by referring to a previous study (Ogura, 2007). The 281 expressive vocabulary words in the following subcategories were classified into nouns; "B. Names of animals," "C. Vehicles," "D. Toys," "E. Food and drinks," "F. Clothes," "G. Body parts," "H. Furniture and rooms," and "I. Small household goods." The 103 words included in "N. Motion words" were regarded as verbs. 63 words included in "P. Appearance/characteristics" were adjectives. 75 words included in "Q. Pronouns," "R. Questions," "S. Positions and places," and "T. Quantity" were regarded as closed-class words. Based on the number of words in the above four word-types and children's scores, the percentage of the score for each word-type in DS children was calculated. Moreover, children were classified based on the number of expressive vocabulary words, and the correlation between the number of expressive vocabulary words and the composition of vocabulary was examined, which indicated the following; four children had 0~100 expressive vocabulary words, seven children had 101-200, six children had 201-400, five children had 401~600, and five children had more than 601 expressive vocabulary words. Figure 2-1~ Figure 2-5 indicate the percentage of the score for each word-type based on the number of expressive vocabulary words of DS children. In addition, the lowercase alphabets on the horizontal axis in Figure 2-1 to Figure 2-5 represent codes of each child with DS.



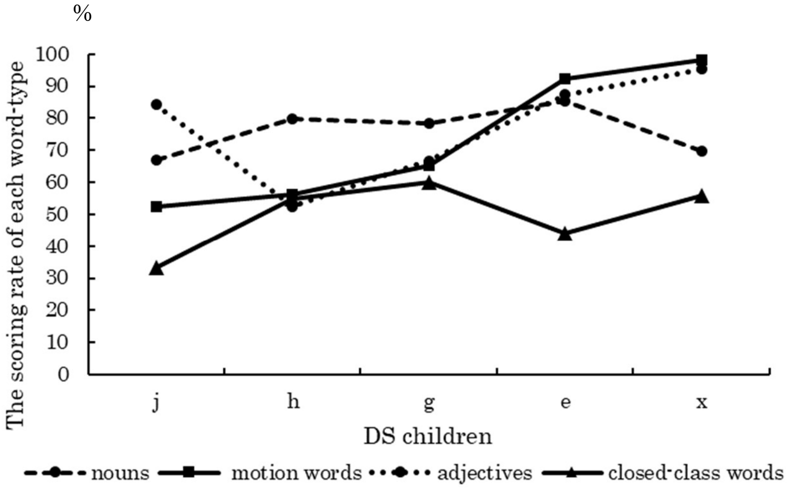
<Figure 2-1>
The scoring rate of each word-type in children with 1~100 expressive vocabulary words
The lowercase alphabets on the horizontal axis represent codes of each child with DS.



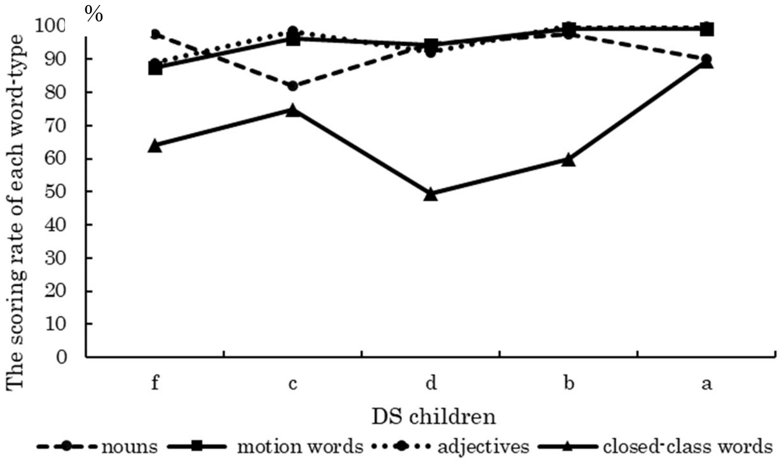
<Figure 2-2>
The scoring rate of each word-type in children with 101~200 expressive vocabulary words
The lowercase alphabets on the horizontal axis represent codes of each child with DS.



<Figure 2-3>
The scoring rate of each word-type in children with 201~400 expressive vocabulary words
The lowercase alphabets on the horizontal axis represent codes of each child with DS.



<Figure 2-4>
The scoring rate of each word-type in children with 401~600 expressive vocabulary words
The lowercase alphabets on the horizontal axis represent codes of each child with DS.



<Figure 2-5>
The scoring rate of each word-type in children with 601~711 expressive vocabulary words
The lowercase alphabets on the horizontal axis represent codes of each child with DS.

Correlations between motion words and postpositional particles, auxiliary verbs, the maximum length of a sentence, as well as the complexity of a sentence were examined by calculating the Spearman's rank correlation coefficient, which indicated significant positive correlations with postpositional particles (r=.876, p<.01), with auxiliary verbs (r=.880, p<.01), with the maximum length of a sentence (r=.712, p<.01), and with the complexity of a sentence (r=.677, p<.01).

Correlations between the motion word score and chronological age, as well as the degree of certified intellectual disabilities, were examined by calculating Spearman's rank correlation coefficients. Five children with intellectual disability levels that could not be classified into the four certification levels were excluded from the analysis, and the rest were classified into preschool children (n=10) and elementary school children (n=12). The results indicated a significant positive correlation between motion word score and chronological age in preschool children (r=.662, p<.05). On the other hand, the correlation between the motion word score and the degree of certified intellectual disabilities was not significant (r=.386, p>.05). Moreover, a significant correlation was not indicated between the motion word score and the degree of the certified intellectual disabilities in elementary school children, (r=.385, p>.05) or between the motion word score and chronological age (r=.438, p>.05).

<Table 1> Rank correlation coefficients between the items of JCDIs and the items related to parents' approaches to children

Parents' approaches to children	Items of "words and grammar" in JCDIs					
	Motion words (n=22)	Expressive vocabulary (n=22)	Postpositional particles (n=22)	Auxiliary verbs (n=22)	The maximum length of a sentence (n=15)	The complexity of a sentence (n=18)
Making children listen to songs or music	.288	.295	.059	.077	.111	.084
Reading books to children	.364	.350	.097	.148	-.104	.234
Showing TV or videos to children	.241	.240	.179	.053	-.250	-.102
Putting a child in a children's group	-.434*	-.445*	-.448*	-.455*	-.309	-.242
Giving a chance for children to interact with adults other than family members	-.360	-.352	-.495*	-.416	-.231	-.051
Teaching the name of persons and things	.074	.043	.024	.002	.325	.221
Reading and writing letters	.571**	.519*	.576*	.590*	.330	.173
Reading and writing numerals	.480*	.430*	.506*	.545*	.497	.379
Using picture cards at home	-.178	-.260	-.386	-.373	.084	-.150
Using the applications of electronics such as tablet-type devices together with children or making children use them	.234	.268	.212	.238	-.249	-.181

**p < .01 *p < .05

Furthermore, Spearman's rank correlation coefficient was calculated between motion word scores and items assessing "parents' approaches to children" as well as "speaking to children" after excluding participants that did not respond or had missing values. Table 1 shows the correlations between motion word scores and approaches to children. A significant mid-level positive correlation (r=.571, p<.01) was indicated between motion words and “reading or writing letters” and a significant mid-level positive correlation (r=.480, p<.05) was indicated between motion words and “reading and writing numerals.” Table 2 shows the correlations between motion words and speaking to children. A significant mid-level positive correlation (r=.421, p<.05) was indicated between motion words and “teaching polite language.”

<Table 2> Rank correlation coefficients between the items of JCDIs and the items related to speaking to children

Speaking to children	Items of "words and grammar" in JCDIs					
	Motion words (n=26)	Expressive vocabulary (n=26)	Postpositional particles (n=26)	Auxilary verbs (n=26)	The maximum length of a sentence (n=15)	The complexity of a sentence (n=19)
Asking the names of things	.271	.301	.117	.077	.247	-.011
Teaching the names of things	-.058	-.038	-.194	-.229	.017	.016
Giving an example of the ways of speaking when a child is at a loss for a word	.215	.226	.192	.093	-.010	-.140
Making questions to develop conversations	-.085	-.095	-.089	-.168	.092	.136
When children make a mistake when speaking, teaching them correct expressions	.144	.164	.096	-.006	.137	-.025
Talking about what parents experienced	-.110	-.120	-.227	-.292	.081	-.069
Talking about parents ' feelings and impressions	-.071	-.087	-.102	-.155	.206	.132
Teaching polite language	.421*	.472*	.406*	.313	.295	.112

*p < .05

IV. Discussion

The mean percentage of the score for “M. Daily routine and greetings” was the highest among the 24 sub-categories of expressive vocabulary, followed by “A. Baby talk,” “G. Body parts,” “B. Names of animals,” “E. Food and drinks,” and “D. Toys,” in descending order. The mean percentage of the score for “N. Motion words” was 38.4%, which ranked 17th among 24 sub-categories. It has been demonstrated that children acquire words related to a person, food, vehicles, body parts, and greetings in the early stage of development (Kobayashi, 2008). The words that are easily acquired by DS children are considered to be similar to typically developing (TD) children. Conjunctions among the parts of speech are used by TD children at last (Okubo, 1967). In the present study, the mean percentage of the score for “U. Connection” was the lowest among expressive vocabulary words. Easily acquired words as well as words with a delayed acquisition may be similar in DS and TD children.

Moreover, we examined the differences in the percentage of the score for each word-type depending on the number of acquired expressive vocabulary words by referring to Ogura (2007). The results indicated that the percentage of the score for motion words of children with 1~100 expressive vocabulary words was 0% or nearly 0%, whereas the rate of 0% was less in children with 101-200 expressive vocabulary words. In some children, the percentage of the score for motion words was higher than that for closed-class words. Only one child among children with over 201 expressive vocabulary words had the lowest ranking for the motion word score in the four word-types. Children with over 600 expressive vocabulary words did not show significant differences among the scores for nouns, verbs, and adjectives, and had a percentage of the score of over 85. The increase in the rank of the percentage of motion word scores among the four types of words is consistent with Ogura (2007) who also examined TD children. It has been indicated that the percentage of the names of general things increases most rapidly in TD children when the number of excessive vocabulary words is 50~100, which keeps increasing until 200 words, whereas the percentage of nouns starts to decrease when exceeding 200 words (Kobayashi, 2008). Therefore, it is considered that the verb acquisition rate of DS children would also increase when the number of expressive vocabulary words exceeds 200. Therefore “200 words” is regarded as a criterion.

We also investigated the correlations between motion words and “Postpositional particles,” “Auxiliary verbs,” “The maximum length of a sentence,” and “The complexity of a sentence” in JCDIs. It was indicated children with higher motion word scores had higher scores for the other items as well. Moreover, a strong correlation was shown between motion words and postpositional particles, auxiliary verbs, the maximum length of a sentence, and the complexity of a sentence. Verbs have the role of making the basic structure of a sentence (Morikawa, 2017). Therefore, there might have been a strong correlation between motion words and each grammatical item.

We also examined the correlations between motion words and chronological age as well as the degree of the certified level of intellectual disabilities, which indicated a strong correlation with the chronological age of preschool children. It is suggested that preschool children acquire motion words as the chronological age increases. On the other hand, the correlations with both chronological age and the certified level of intellectual disabilities disappeared in elementary school children. This could be because the effects of chronological age and the level of intellectual disabilities on the acquisition of motion words decrease in elementary school children.

Moreover, correlations between motion word scores and each “parents’ approaches to children” and “speaking to children” item were examined, which indicated a strong correlation between motion words and “reading and writing letters”, and a mid-level correlation between motions words and “reading and writing numerals.” It is considered that verbs are acquired by reading and writing letters and numerals. Regarding “speaking to children,” a mid-level correlation was identified between motion words and “teaching polite language.” Otomo et al. (2005) examined language development in TD children from early childhood to childhood and suggested “teaching polite language” might provide new perspectives and expression methods to children, which were not previously in the children’s repertory. The results of the present study suggest that parents’ approaches to DS children, i.e., teaching polite language, might increase expressive vocabulary words.

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Short Paper

Experience of Reflecting Process in Graduate School for Clinical Psychologist

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ABSTRACT

This study investigated the difference of experiences between reflecting process (RP) and conventional case conference. The subjects were 20 graduate students who were novice counsellors. All of the subjects were divided into two groups, high session management self-efficacy and low session management self-efficacy. Before and after RP, the transition of the self-efficacy was examined. The results showed that RP got higher score than conventional case conference in such items as “I was able to express my opinions properly,” “I was able to listen properly to the opinions of other participants.” RP also marked higher than usual case conference in some categories; considerations from multilateral perspective and unexpected ideas. However, although the group of low session management self-efficacy increased the self-efficacy after RP, the group of high session management self-efficacy did not show the change of self-efficacy. These results suggested the effectiveness of conducting RP in considering purposes and according to development stage of graduate students.

＜Key-words＞
graduate students, reflecting process, session management self-efficacy

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Ⅰ. Introduction

In many graduate school programs for clinical psychologists in Japan, it is obligatory to present a case review, which usually involves being responsible for a clinical case at a counseling facility. Subsequently, student clinicians are required to make a presentation based on that case at a conference. The purpose of this is to help student clinicians develop an underlying theoretical perspective about a case and to facilitate appropriate management. Case conferences also present an opportunity for students to gain knowledge and different perspectives that can be applied to their other cases. Due to this, undertaking a case conference has positive implications for a practitioner's case management skills (Shimoyama, 2013). However, there is a lack of empirical research about whether doing case reviews are useful for those who present the cases in terms of resolving their case management difficulties and promoting the development of their clinical skills. Kobayashi, Fukumoto, Matsui et al.(2013) have described the need to improve the quality of clinical education for psychology students in Japan by providing increased clinical supervision and verifying the efficacy of clinical education methods so that students can acquire greater knowledge and skills.

The use of reflecting teams is an innovative method for training counselors, which was developed by Andersen(1987). The purpose is to offer multiple descriptions and perspectives of clients' situations. In this approach, the counseling team shares its reflections with clients after observing the counseling session. This allows clients to select the ideas that seem pertinent to their situation (Chang, 2010). Role plays using this reflecting process (RP), where in the roles of therapist, client, and observer are shared among participants, can be used as a part of case review conferences. The interactions with opinions and ideas from various perspectives afforded by this method create new perspectives, ideas, feelings, and modes of action for everyone involved.

The diverse comments of those involved in an RP session make it possible for student clinicians to gain insight into perspectives that may have been overlooked. In addition, the clinicians are able to gain an increased awareness of interviewing methods through observing the role-play processes (Andersen, 1991; 2001). Thus, with RP, all participants can have the opportunity to hone their skills as psychologists. It also has further applications for the supervision and training of clinicians (James, MacCormack, Korol, et al., 1996). The advantage of RP is that, both in life and in role play, everyone contributes equally to the therapeutic moment (Smith, Yoshioka & Winton, 1993). Because of this capacity for providing an overview of the case, RP can be seen as suitable for helping to educate psychologists.

According to Misawa, Itakura & Hasegawa(2008), in a conventional case conference, "the presenter presents a summary of their case examples, and then proceeds with a free-form question and answer session in the presence of a moderator." This study focuses on students in graduate schools for clinical psychologists who have experience of both conventional case conference and RP, and it considers the difference between both approaches in terms of students' experiences of reviewing cases. Previous research has highlighted the effectiveness of education that is appropriate to the therapist's stage of development (Skovholt & Ronnestad, 2012). Therefore, this study also looks at the difference between participants with high and low self-efficacy in terms of session management (SM), considering the difference in SM self-efficacy before and after experiencing RP.

Ⅱ. Subjects and Methods

1. Subjects

The sample comprised 20 graduate students who were enrolled in Master's courses at a university in the Tokai region in 2016. The mean age of the students was 28.55 years (SD = 8.13). Twelve students were in their first year of study and five were in their second year. In addition, there were three visiting students working as teacher's assistants who also took part in the study.

2. Questionnaire Contents

The SM self-efficacy scale (Kasai, 2005) was used to measure the student clinicians' self-efficacy in conducting interviews. This scale is part of the Japanese language version of the counseling self-efficacy scale, and it uses a seven-point scale to assess the extent to which respondents feel they can manage counseling interviews, from "not at all confident" (1 point) to "very confident" (7 points). In constructing items related to the students' experience of case conference, we reference the results of investigations by Maki(2013) and Kitazoe(2005) into the experiences of case conferences for students, as well as Shimoyama's description of the purpose of case conferences (Shimoyama, 2013), and the findings of Kasai and Tsuchihashi(2012) on the necessity of self-reflection. Based on the aforementioned studies and consultations with three psychology graduate students, we created 11 items relating to case conference experiences. We used a six-point scale, from "not at all" (1 point) to "very much" (6 points) to compare the experience of conventional case conference with experiences using RP.

3. Procedures and Ethical Considerations

After obtaining informed consent from participants, we started by distributing the SM self-efficacy scale to the participants. Subsequently, the researcher explained that they were going to conduct a case conference designed specifically for family therapy. Then, the participants were divided into four groups, comprising four–five people per group, and a second year Master's student at Graduate School A took the role of presenting cases (hereinafter referred to as the "client") and presented a case that they were responsible for in the consultation room (Figure. 1). The case related to a woman whose daughter refused to go to school. The situation had been resolved in a series of seven sessions with the mother, and we obtained her consent to present this case.

The procedure was performed using a four-step process:

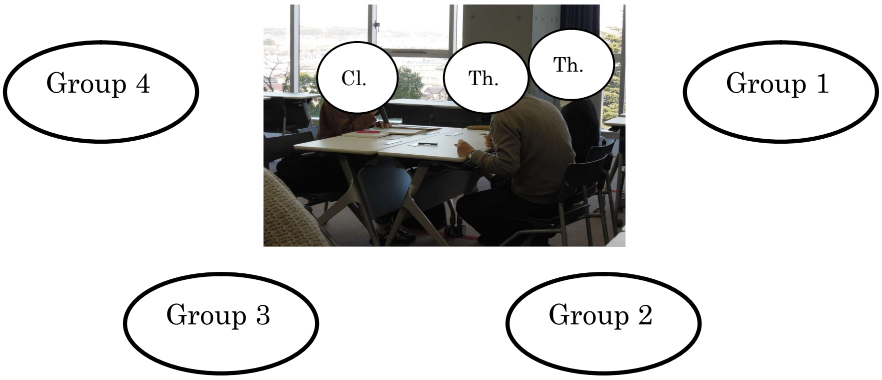
(1) RP does not make use of handouts and information sheets etc.; instead, in the first 20 minutes of the session, the person in the role of the main therapist and the person in the role of the assistant therapist summarized the client's case and proceeded to clarify any issues with the case. In RP, those in the client's role may speak with those in therapist's roles only, and the observers quietly watched the interaction between the clients and therapists.

(2) In the next stage, the four participants in the observers' roles spent 20 minutes discussing the counseling interview. When reflecting on their observations, the participants were told not to engage with the presenters ("clients") and the interviewers (therapists). According to the RP method (Andersen, 1991; 2001), we requested the participants to engage in reflection using a calm tone of voice and maintaining an open and questioning attitude throughout, without making critical or negative remarks or speaking in a judgmental manner. The clients and therapists quietly observed these discussions.

(3) After reflection, the clients and therapists discussed the case again for 15 minutes, and the observers quietly watched their interaction.

(4) Following this, each group engaged in reflection on the case for 15 minutes more. Then, in the final 5 minutes, the client and therapist discussed a summary of the case, and the RP ended.

After finishing the RP, we again administered the SM self-efficacy scale to all of the participants. In addition, we obtained responses to 10 questions regarding the participants' experiences of case conferences. Following this, we debriefed the participants and obtained consent, fulfilling the confidentiality obligations in relation to the case contents.



<Figure 1> Configuration of RP in this study

※Note : Therapist = Th. Client = Cl.

4. Statistical analysis

A paired t-test was conducted to compare the experiences of RP and conventional case conference. To investigate the changes in SM self-efficacy before and after doing RP, while also considering the differences between high and low SM self-efficacy, a mixed-design analysis of variance was conducted to examine factors internal and external to the participants and two factors relating to self-efficacy and pre- and post-RP were examined. Date analysis was performed with IBM SPSS Statistics 21.0.

Ⅲ. Results

1. Comparison of Experiences of RP and Conventional Case conference

The results for each item are shown in Table 1. For the items, “I was able to express my opinions properly” (t (19) = 2.65, P < .05, ⊿=.73), “I was able to listen properly to the opinions of other participants” (t (19) = 3.10, P < .01, ⊿=1.52), “I was able to examine the case from a multilateral perspective” (t (19) = 3.68, P < .01, ⊿=1.45), “It was useful for getting ideas that were applicable to my own cases” (t (19) = 2.79, P < .05, ⊿=1.01), “Unexpected ideas were generated” (t ((19) = 6.00, P < .001, ⊿=.2.03), and “I was able to get useful viewpoints for advancing the case” (t (19) = 2.63, P <.05, ⊿=.56), the scores were again significantly higher for RP than for conventional case conference. However, for the items “I was able to think deeply about the case,” “I was able to think deeply about myself, “It was useful for defining the path of the case,” and “I was able take my time to reflect on the case,” there was no significant difference between conventional case conference and RP.

<Table 1> Differences between RP and conventional case conference

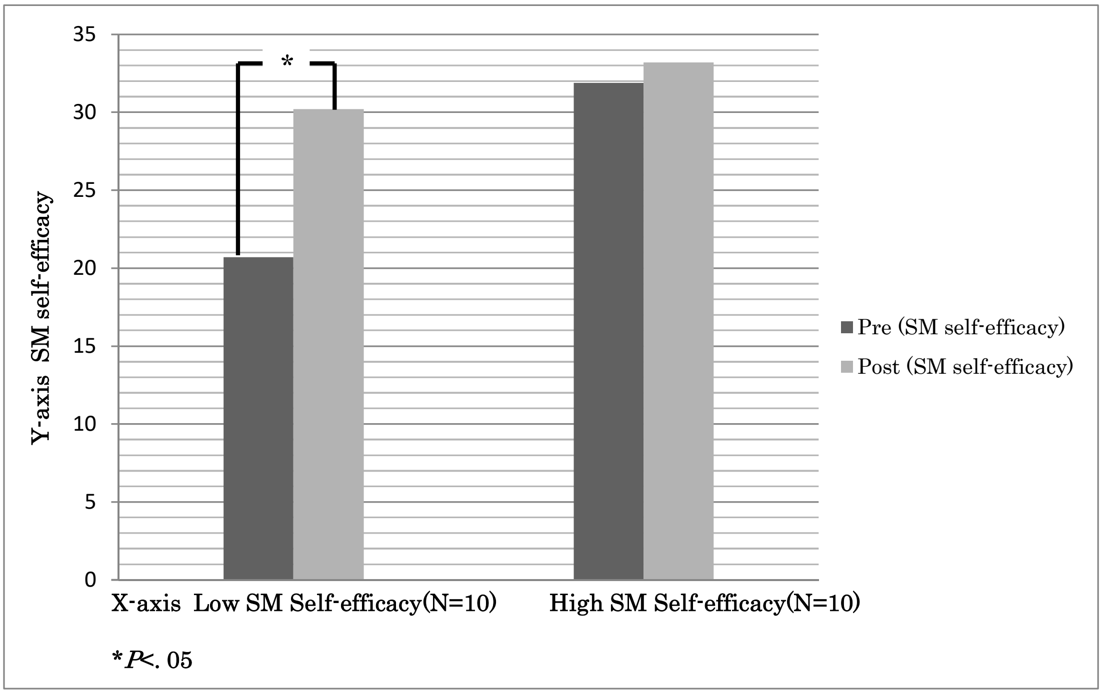
	RP		Conventional case conference			
	M	SD	M	SD	t-ratio	effect size (Δ)
1) I was able to express my opinions properly.	4.15	1.23	3.25	.97	2.65*	.73
2) I was able to listen properly to the opinions of other participants.	5.00	.56	4.15	1.04	3.10**	1.52
3) I was able to think deeply about the case.	4.25	1.12	4.55	.76	-.84	.27
4) I was able to examine the case from a multilateral perspective.	5.05	.69	4.05	.89	3.68**	1.45
5) It was useful for getting ideas that were applicable to my own case.	4.90	.79	4.10	.91	2.79*	1.01
6) I was able to think deeply about myself.	3.75	.85	4.10	.79	-1.58	.41
7) It was useful for defining the path of the case.	4.45	1.05	4.30	1.03	.39	.14
8) I was able take my time to reflect on the case.	4.20	.95	4.50	.61	-1.45	.32
9) Unexpected ideas were generated.	5.15	.59	3.95	.76	6.00***	2.03
10) I was able to get useful viewpoints for advancing the case.	4.75	.72	4.35	.81	2.63*	.56

$^{*}P<.05$ $^{**}P<.01$ $^{***}P<.001$

2. Changes in SM Self-Efficacy Before and After RP

As a result, it was shown that SM self-efficacy increased following RP (F(1, 18) = 7.67, P <.05, η^2=.28). Furthermore, since the interaction was significant (F(1, 18) = 4.42, P

<.05, η^2 =.16), a simple main effect test revealed that in the group with low SM self-efficacy scores, their SM self-efficacy improved after their experience with RP. Meanwhile, there was no change to SM self-efficacy after RP in the group with high SM self-efficacy scores (Figure 2).



<Figure 2> Changes in SM self-efficacy pre- and post-RP

Ⅳ. Discussion

In this study, for the items relating to “expressing opinions properly” and “listening to other participants’ opinions properly,” RP scored higher than conventional case conference. This suggests that the RP process of sharing diverse opinions through discussion and engaging in repeated self-reflection while listening to the opinions of others is effective regarding speaking and listening to others. Since RP participants engage in free reflection and avoiding critical remarks, it is possible that participants who were inexperienced as counselors were less likely to feel intimidated by the evaluation element of the case conference. Moreover, in comparison with conventional case conference, it was shown that RP allows for cases to be examined from a more multilateral perspective, which helps with generating more ideas and unexpected applications. These support the finding that RP produces a wide range of useful ideas (Misawa, Itakura & Hasegawa, 2008). However, regarding the items, “deeply thinking about the case” and “taking time to reflect on the case,” there was no significant difference between RP and conventional case conference. On this basis, conventional case conference may have advantages in terms of self-reflection, gaining a deep understanding of cases, and reflecting on cases. Therefore, it seems necessary to implement RP after reflecting on the purpose of the case conference. In addition, although SM self-efficacy increased in the low SM self-efficacy group, there was no change in the SM self-efficacy of the high SM self-efficacy group. In light of the differing developmental stages of therapists, it can be expected that factors such as professional judgment will become more systematized over time through repeatedly taking part in case conferences. Based on this, it seems that as SM self-efficacy increases, ways of understanding cases gradually converge from a broad perspective, and thus it may become difficult to obtain effects from the diversity of ideas produced with RP. This suggests that, when considering the implementation of RP, the most effective approach may be to apply RP according to the level of self-efficacy and the developmental stage of the therapist.

Ⅴ. Limitations

In this study, the reliability and validity of the items are yet to be thoroughly examined. Since this study did not make the comparison using a case, further study is required to make an exact comparison between RP and conventional case conference. This study focused on relatively positive factors of case conferences; however, Maki(2013) found that graduate students can feel lost and that their voices are not being heard during these conferences. From this, it may be that investigation focusing on less positive factors is necessary. Despite the problems identified above, this study is significant in terms of verifying the effect of clinical education on clinical psychologist training courses as first identified by Kobayashi, Fukumoto, Matsui et al.(2013).

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Case Report / Activity Report

Analysis of Difficulties faced by Home Health Nursing Practicum Instructors

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ABSTRACT

Japan is transforming into a super-aging society and the medical need for in-home care is rising. Nursing students have to deal with a wide range of diseases, degeneration and circumstances in such a situation. This study aimed to identify difficulties faced by home health nursing practicum instructors in order to gain an insight for effective learning. Quantitative research by questionnaire was conducted, and a total of 387 questionnaires were sent to managers, clinical instructors, and home health nurses at all 129 facilities in the southern Kanto region of Japan. As a result, 78 valid responses were obtained out of 89 responses (valid response rate 20.16%). The participants with 0 to 6 years of home health nursing experience were concerned that the practicum time was too short to provide adequate instruction and that students under their instruction might not be meeting practicum goals. The participants with 6 to 20 year experience stated that students do not know how to behave appropriately during home visits, students do not know specifically what they want to learn. The participants with ≥15 year experience felt they are unsure how to integrate students' different motivations for learning. Focusing with participants' nursing experience, the respondents with 5 to 15 years of nursing experience did not feel that they concern about leading a practicum, and the respondents with ≥15 year of nursing experience felt that students did not go specifically what they want to learn. To conclude, it was found important that lecture contents should be revised to help students first visualize what home visits look like and second, make assessments and provide care based on case details within the allotted time. What is more, faculty members must not make instructors solely responsible for students' learning, but rather maintain close contact with instructors for effective on-site instruction.

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I. Introduction

1.Background and significance

Japan is transforming into a super-aging society, and it is said that the percentage of elderly people in the population will exceed 30% by the time the youngest members of the baby boomer generation reach age 75 in 2025 (Ministry of Health Laborer and Welfare, 2017). The Japanese Ministry of Health, Labor and Welfare recommends that local governments build community-based integrated care system that enable people with health problems to be discharged from the hospital and live in their own familiar community to lower medical expenses and duration of hospital stays. However, many people still require in-home care due to high-level medical needs. Many people transition to in-home care for a medical condition after discharge from acute care. They may be on a ventilator, need continuous infusions, be undergoing in-home peritoneal dialysis, have an intractable neurological disease, be elderly and have dementia or be paralyzed due to cerebrovascular disease, have a psychiatric disorder, or have a pediatric disease. In addition, the target clients for in-home care range widely from children to the elderly.

The “home health nursing” was established as part of basic nursing education in 1996, and the curriculum for nursing education and training will be revised in 2022, which will see it newly categorized under community and home health nursing (Ministry of Health, Labor and Welfare, 2019; Sato, 1999).

Studies have found that practicum instructors who train nurses face difficulties such as lack of confidence as an instructor, engagement of students with low motivation, and inability to provide sufficient instruction due to a busy work schedule (Ishizaki & Ikeda, 2008; Yoneda, Maekawa & Okino, 2008). Studies have also found that instructors understand students’ feelings better and learn and grow alongside students as they gain experience as instructors (Fukaya, Naito & Mitamura, 2013; Haku, Kurita & Tanaka, 2001), but no study has explored the relationship between difficulties faced and years of experience as a practicum instructor.

Therefore, this study aimed to clarify the relationship between difficulties faced by practicum instructors and years of experience among staff of home nursing stations that accept nursing practicum students in the southern Kanto region of Japan. Accordingly, issues relating to home health nursing practicums may be identified, in addition to effective learning methods for home health nursing.

II. Subjects and Methods

1. Subjects and Procedures

1) Study period

After ethics committee approval was obtained, the study commenced on November 1, 2019 and ended on January 31, 2020.

2) Participants

Participants, namely managers, clinical instructors, and home health nurses accompanying students to practicums, were selected from all 129 home nursing stations that accept nursing practicum students in the southern Kanto region of Japan (The National Association for Visiting Nurse Service: Kanagawa, 2019).

3) Methods

This study employed quantitative research by questionnaire. The main author composed the questionnaire content, first, about the attribute of home health nurses included age group, job responsibilities, years of nursing experience, years of home health nursing experience, and qualifications (Certified Nurse or Certified Nurse Specialist). Secondly, the questions about the difficulties faced by supervisors, clinical instructors, and home health nurses during home health nursing practicums were compiled referring to Imagawa, Kitayama & Araki (2016) with their approval. 30 of the 33 subcategory items "difficulties faced by training instructors and various other disciplines were refereed by Imagawa, Kitayama & Araki (2016). Five items were added for a total of 35 and included what instructors wish for students to learn in home health nursing practicums: "understanding clients," "the viewpoint of clients," "respecting clients," "understanding community-based integrated care system," and "the home health nurse's perspective."

Responses were given according to a 4-point scale consisting of "agree," "somewhat agree," "somewhat disagree," and "disagree."

2. Data Collection

1) Collection method

The purpose and methods of the survey were explained in writing. Only the minimum necessary data for the study were collected, and all questionnaire forms were anonymous.

Questionnaire forms were mailed along with a return envelope for the completed questionnaire, an explanation of the study, and a letter requesting participation in nursing research. Responses were collected indirectly by having each consenting participant seal and mail back their completed form in an envelope.

2) Ethical considerations

Enclosed with the questionnaire form was a letter that explained the voluntary nature of participation, freedom to decline, no consequences for declining to participate, protection of personal information, and how the results would be reported. Return of the completed form by mail was considered to constitute consent. The study was conducted with the approval of the human research ethics committee of Kanto Gakuin University (Approval No. H2019-3-2).

3) Statistical Analysis

Question items were cross-tabulated. “Agree” and “somewhat agree” were categorized as “agree,” and “somewhat disagree” and “disagree” as “disagree.” The nonparametric chi-square test for independence was used to calculate differences in responses.

Differences in responses by years of home health nursing experience and years of nursing experience were also calculated using *t*-tests. The significance level was set at < 5%. IBM SPSS Statistics (Ver. 24) software was used for analysis.

III. Results

1. Participants

A total of 387 questionnaires were sent to 129 facilities (3 forms for each), and 89 responses (response rate 22.99%) were obtained. After excluding those with missing responses, the questionnaires of 78 respondents (valid response rate 20.16%) were included for analysis.

2. Participant attributes

1) Age group

Most participants were in their early 50s (n = 25, 32.1%), followed by late 40s (n = 14, 17.9%), and then early 40s and late 50s (n = 11, 14.1% for both) (Table 1).

<Table 1> Age group

n = 78

Age group	Frequency (%)
Early 20s	2 (2.6)
Late 20s	2 (2.6)
Early 30s	2 (2.6)
Late 30s	8 (10.3)
Early 40s	11 (14.1)
Late 40s	14 (17.9)
Early 50s	25 (32.1)
Late 50s	11 (14.1)
Early 60s	3 (3.8)

2) Job duties

Seventeen participants were managers, 14 were clinical instructors, and 48 were home health nurses (Table 2).

<Table 2> Job duties

n = 78

Job duties	Frequency *
Managers	17
Clinical instructors	14
Concurrent administrator	2
Certified nurses	1
Home health nurses	48
Certified nurse	1
Professional nurse	1

* Multiple answers

3) Years of nursing experience

Most participants had ≥20 years of experience (n = 45, 57.7%), followed by 15 to 20 years (n = 15, 19.2%), and then 10 to 15 years (n = 11, 14.1%) (Table 3).

<Table 3> Years of nursing

n = 78

Years	Frequency (%)
1 year	1 (1.3)
3-5 years	1 (1.3)
5-10 years	5 (6.4)
10-15 years	11 (14.1)
15-20 years	15 (19.2)
20 years of	45 (57.7)

4) Years of home health nursing experience

Most participants had 10 to 15 years of experience (n = 15, 19.2%), followed by 15 to 20 years (n = 12, 15.4%) (Table 4).

<Table 4> Years of home health nursing experience

n = 78

Years	Frequency (%)
1 year	2 (2.6)
1-2 years	3 (3.8)
2-3 years	7 (9.0)
3-4 years	4 (5.1)
4-5 years	3 (3.8)
5-6 years	4 (5.1)
6-7 years	3 (3.8)
7-8 years	7 (9.0)
8-9 years	6 (7.7)
9-10 years	4 (5.1)
10-15 years	15 (19.2)
15-20 years	12 (15.4)
20 years of	7 (9.0)

3. Difficulties faced by supervisors, clinical instructors, and home health nurses during home health nursing practicums

1) Responses to the 35 items according to a 4-point scale consisting of “agree,” “somewhat agree,” “somewhat disagree,” and “disagree” (Table 5)

The item to which most participants responded “agree” was “I am unsure how to integrate students’ different motivations for learning” (Item No. 10) at 32.1%. This was followed by “I feel that I cannot give students enough instruction or practical experience when I am busy” (No. 15) and “I find selection of which clients students should visit to be difficult” (No. 29) at 30.8% each. The item to which most participants responded “somewhat agree” was “Students cannot communicate with clients” (No. 2) at 51.3%. This was followed by “I feel that students are not proactive about their learning” (No. 8), “I feel that students sometimes do not fully understand what I teach” (No. 9), and “I worry whether students’ experience under my instruction meets practicum goals” (No. 21) at 50% each. The item to which most participants responded “somewhat disagree” was “I have little practical experience and am concerned about leading a practicum” (No. 24) at 52.6%. This was followed by “I have little knowledge and am concerned about leading a practicum” (No. 25) at 51.3% and “I feel that students did not gain the viewpoint of clients” (No. 32) at 50%. The item to which most participants responded “disagree” was “It is concerning when home visits go over time to fit the teaching plan” (No. 11) at 51.3%.

2) Differences in responses to the 35 items (Table 5)

Significant differences were observed for "Students cannot communicate with clients" (No. 2), "Students are not very responsive, and I do not know what they are thinking" (No. 5), and "Students do not prepare in advance, and do not come up with their own questions" (No. 6). This indicates that students do not prepare sufficiently for practicums. There was a high percentage of "disagree" responses for "I feel that students did not gain the viewpoint of clients" (No. 32), "I feel that students did not respect clients' dignity" (No. 33), "I feel that students did not understand community-based integrated care system" (No. 34), and "I feel that students did not understand the home health nurse's perspective" (No. 35). These results thus indicate that the students did understand the viewpoint of clients and the home health nurse perspective.

Responses to the following items indicated that clinical instructors have difficulty with leadership and selection of clients that students should visit: "I am unsure how to integrate students' different motivations for learning" (No. 10), "It is concerning when home visits go over time to fit the teaching plan" (No. 11), "I feel I have no time to engage deeply with students" (No. 12), "I feel that the short practicum time limits students' learning potential" (No. 13), "The short practicum time does not allow me to provide adequate instruction" (No. 14), "I feel that I cannot give students enough instruction or practical experience when I am busy" (No. 15), "I worry how much students are learning under my instruction" (No. 20), "I worry whether students' experience under my instruction meets practicum goals" (No. 21), "I have little knowledge and am concerned about leading a practicum" (No. 25), "I find practicum scheduling to be difficult" (No. 28), and "I find selection of which clients students should visit to be difficult" (No. 29).

3) Comparison of responses by years of home health nursing experience (Table 6)

Significant differences were found in participants with <1 year and 1 to 2 years of home health nursing experience for "I feel that the short practicum time limits students' learning potential" (No. 13), "The short practicum time does not allow me to provide adequate instruction" (No. 14), "I feel that I cannot give students enough instruction or practical experience when I am busy" (No. 15), "I worry how much students are learning under my instruction" (No. 20), "I worry whether students' experience under my instruction meets practicum goals" (No. 21), and "I have to drive carefully when students are riding with me" (No. 30). Significant differences were also observed in participants with 2 to 3 years and 3 to 4 years of experience for "I feel I have no time to engage deeply with students" (No. 12), in participants with 4 to 5 years and 5 to 6 years of experience for "The short practicum time does not allow me to provide adequate instruction" (No. 14) and "I feel that students did not gain a layperson's perspective" (No. 32), and in participants with 6 to 7 years and 7 to 8 years of experience for "Students do not know how to behave appropriately during home visits" (No. 1) and "Students cannot communicate with clients" (No. 2). Significant differences were also evident in participants with 8 to 9 years and 9 to 10 years of experience for “Students do not know how to behave appropriately during home visits” (No. 1), “Students do not know specifically what they want to learn” (No. 3), and “Students do not prepare in advance, and do not come up with their own questions” (No. 6), in participants with 10 to 15 years and 15 to 20 years of experience for “Students cannot communicate with clients” (No. 2), and in participants with 15 to 20 years and ≥20 years of experience for “I am unsure how to integrate students’ different motivations for learning” (No. 10) and “I feel that students did not understand comprehensive regional care systems” (No. 34).

4) Comparison of responses by years of nursing experience (Table 6)

Significant differences were found in participants with 5 to 10 years and 10 to 15 years of nursing experience for “I have little practical experience and am concerned about leading a practicum” (No. 24), and in participants with 15 to 20 years and ≥20 years of experience for “Students do not know specifically what they want to learn” (No. 3) and “Students do not prepare in advance, and do not come up with their own questions” (No. 6). No significant differences were observed in participants with <5 years of nursing experience for any item.

IV. Discussion

Analysis of the relationship between years of home health nursing experience and responses to questionnaire items showed that the participants with 0 to 6 years of home health nursing experience were concerned that the practicum time was too short to provide adequate instruction and that students’ experience under their instruction might not be meeting practicum goals. Matsuo & Takada (2013) stated that outcomes of practicums are affected by maintaining close contact with practicum instructors and proactively sharing information about students’ advance preparation status, students’ thoughts and feelings, and whether or not simulations have been completed in class while devising strategies to promote learning. To alleviate instructors’ concerns, faculty members need to thoroughly discuss students’ learning level, and thoughts and attitude in relation to the practicum in preliminary meetings with instructors. Faculty members must also physically visit the practicum site during the practicum and proactively exchange opinions with instructors to ensure that practicum goals can be achieved.

<Table 5> Difficulties faced by supervisors, clinical instructors, and home health nurses during home health nursing practicums

No	quesition	1 agree		2 somewhat agree		3 somewhat disagree		4 disagree		Chi-square value
		frequency	%	frequency	%	frequency	%	frequency	%	
1	Students do not know how to behave appropriately during home visits	4	5.1	28	35.9	27	34.6	19	24.4	2.922
2	Students cannot communicate with clients	13	16.7	40	51.3	18	23.1	7	9.0	** 10.051
3	Students do not know specifically what they want to learn	17	21.8	28	35.9	23	29.5	10	12.8	1.846
4	Students do not what is their purpose to learn	12	15.4	25	32.1	25	32.1	16	20.5	0.205
5	Students are not very responsive, and I do not know what they are thinking	14	17.9	38	48.7	20	25.6	6	7.7	** 8.667
6	Students do not prepare in advance, and do not come up with their own questions	16	20.5	35	44.9	20	25.6	7	9.0	** 7.385
7	I feel that students lack interest and motivation	6	7.7	34	43.6	22	28.2	16	20.5	0.051
8	I feel that students are not proactive about their learning	8	10.3	39	50.0	22	28.2	9	11.5	3.282
9	I feel that students sometimes do not fully understand what I teach	3	3.8	39	50.0	28	35.9	8	10.3	0.462
10	I am unsure how to integrate students' different motivations for learning	25	32.1	30	38.5	19	24.4	4	5.1	** 13.128
11	It is concerning when home visits go over time to fit the teaching plan	2	2.6	7	9.0	29	37.2	40	51.3	** 46.154
12	I feel I have no time to engage deeply with students	22	28.2	30	38.5	15	19.2	11	14.1	** 8.667
13	I feel that the short practicum time limits students' learning potential	17	21.8	32	41.0	18	23.1	11	14.1	* 5.128
14	The short practicum time does not allow me to provide adequate instruction	16	20.5	32	41.0	21	26.9	9	11.5	* 4.154
15	I feel that I cannot give students enough instruction or practical experience when I am busy	24	30.8	28	35.9	20	25.6	6	7.7	** 8.667
16	It is difficult to teach during the visit so I feel I could not teach fully enough.	14	17.9	31	39.7	24	30.8	9	11.5	1.846
17	I worry to what extend I should teach principles and skills about home health nursing	15	19.2	27	34.6	25	32.1	11	14.1	0.462
18	The lack of the time does not allow me to provide enough guidance on how to write reports.	18	23.1	29	37.2	18	23.1	13	16.7	3.282
19	I am not confident and concerned about teaching how to write reports.	15	19.2	29	37.2	24	30.8	10	12.8	1.282
20	I worry how much students are learning under my instruction	20	25.6	38	48.7	16	20.5	4	5.1	** 18.513
21	I worry whether students' experience under my instruction meets practicum goals	17	21.8	39	50.0	17	21.8	5	6.4	** 14.821
22	I worry about my way of instructinons.	12	15.4	31	39.7	29	37.2	6	7.7	0.821
23	I worry about what to tell about educational contents.	11	14.1	30	38.5	32	41.0	5	6.4	0.205
24	I have little practical experience and am concerned about leading a practicum	5	6.4	7	9.0	41	52.6	25	32.1	** 37.385
25	I have little knowledge and am concerned about leading a practicum	3	3.8	11	14.1	40	51.3	24	30.8	** 32.051
26	I am struggling to dealth with the different learning purposes and way of teaching in each school.	17	21.8	29	37.2	17	21.8	15	19.2	2.513
27	I feel a burden to teach students along with my work.	10	12.8	30	38.5	27	34.6	11	14.1	0.051
28	I find practicum scheduling to be difficult	23	29.5	31	39.7	16	20.5	8	10.3	** 11.538
29	I find selection of which clients students should visit to be difficult	24	30.8	34	43.6	17	21.8	3	3.8	** 18.513
30	I have to drive carefully when students are riding with me	15	19.2	28	35.9	17	21.8	18	23.1	0.821
31	I feel that students could not understood clients.	7	9.0	29	37.2	31	39.7	11	14.1	0.462
32	I feel that students did not gain a viewpoint of clients	5	6.4	23	29.5	39	50.0	11	14.1	* 6.205
33	I feel that students did not respect clients' dignity	2	2.6	13	16.7	38	48.7	25	32.1	** 29.538
34	I feel that students did not understand community-based integrated care system	4	5.1	25	32.1	37	47.4	12	15.4	* 5.128
35	I feel that students did not understand the home health nurse's perspective	4	5.1	20	25.6	37	47.4	17	21.8	** 11.538

*P ＜ 0.05 ** P < 0.01

<Table 6> Comparison of years of experience of home health nurses with years of experience

question NO	Years of home health nursing experience t-tests							Years of nursing experience t-tests	
	1year and 1-2years	2-3years and 3-4years	4-5years and 5-6years	6-7years and 7-8years	8-9years and 9-10years	10-15years and 15-20years	15-20years and 20 years of experience	5-10years and 10-15 years	15-20 years and 20 years of experience
1	-0.589	-0.587	0.756	＊ 4.183	＊ 3.288	1.238	0.091	0.661	-1.470
2	0.000	0.858	-0.205	＊ 3.038	1.144	＊ 2.469	-0.457	0.033	-0.565
3	0.293	0.682	-0.66	-0.632	＊ 2.9393	0.272	1.146	-1.825	＊＊ 0.000
4	0.387	1.351	-0.452	0.843	2.254	0.198	1.192	-1.757	-1.977
5	0.000	2.258	-1.195	1.768	1.315	-0.401	0.587	0.043	-1.891
6	-0.293	-1.254	0.378	2.262	＊ 2.529	0.000	1.963	1.327	＊＊ -2.957
7	-0.949	0.069	-1.464	1.342	1.988	0.149	1.160	0.478	-0.837
8	-0.245	0.084	0.598	2.078	1.265	0.847	0.378	0.241	-1.265
9	1.342	0.208	0.205	0.843	1.956	0.872	1.279	0.105	-0.802
10	-3.098	-1.994	0.598	-0.32	1.265	-0.110	＊ 2.355	0.152	1.445
11	1.549	-1.144	0.655	0.837	-0.531	0.458	-0.084	0.881	1.013
12	0.974	＊ -2.482	0.090	0.837	1.492	-0.683	1.422	0.221	0.358
13	＊ 3.806	0.069	2.207	1.777	-1.082	0.323	-0.175	0.273	1.019
14	＊ 3.220	-0.157	＊ 2.645	1.079	-1.350	0.312	-0.183	1.071	1.031
15	＊ 3.220	0.157	1.679	0.384	0.000	0.046	0.116	0.907	0.710
16	0.949	-2.258	1.452	0.000	-0.438	-0.394	-0.95	0.480	0.087
17	0.490	0.230	1.324	-0.303	-0.425	-1.524	0.256	-1.429	-0.818
18	1.464	0.605	1.890	0.197	2.191	0.000	2.058	0.788	-0.471
19	1.936	0.054	-0.132	0.928	-0.155	-0.717	1.444	-0.998	0.489
20	＊＊ 6.708	0.897	1.435	-0.346	-1.171	-1.124	0.486	-0.502	-1.749
21	＊＊ 6.708	1.277	0.378	-1.040	-0.632	-0.807	1.638	-0.661	-1.985
22	1.936	2.165	0.448	0.285	-0.332	-0.169	0.893	-1.061	-0.736
23	1.936	2.165	0.448	0.069	-0.964	-0.733	1.161	-1.246	-0.484
24	1.342	-0.186	2.255	0.000	0.000	-1.424	0.285	＊＊ -3.189	0.229
25	1.936	0.587	2.255	-1.040	-0.279	0.136	-1.292	-1.579	0.781
26	0.775	0.264	0.105	0.712	1.533	1.291	0.051	1.450	-0.149
27	0.974	0.165	0.598	0.303	1.600	0.435	-1.722	-0.349	-0.827
28	1.464	-1.254	0.378	0.000	0.133	0.791	0.416	1.217	-0.260
29	1.464	0.000	0.336	0.332	-1.265	1.518	0.091	-0.140	0.291
30	＊ 3.220	1.526	0.524	0.285	-0.208	0.747	-1.204	-0.085	0.791
31	-0.139	0.084	1.890	0.735	1.350	0.299	0.342	1.015	-0.945
32	-0.775	-1.144	＊ 2.645	0.735	1.265	0.520	0.607	0.074	-1.304
33	-0.696	-1.787	1.452	0.830	1.754	0.316	0.867	0.480	-0.562
34	-0.293	0.270	0.598	0.187	1.508	0.448	＊ 2.637	0.776	-0.620
35	-0.372	0.894	0.452	0.266	＊＊ 3.651	0.957	0.473	0.822	0.000

＊P＜ 0.05　＊＊ P ＜ 0.01

The participants with 6 to 20 years of home health nursing experience felt that students do not know how to behave appropriately during home visits, students cannot communicate with clients, students do not know specifically what they want to learn, and students do not prepare in advance and do not come up with their own questions. Imagawa, Kitayama & Araki(2016) found that students participating in their first practicum are more nervous and worried. They thus concluded that instructors and staff of other disciplines should create an environment where instructors and faculty approach students and converse with them, allowing students to give their opinions and ask questions. For students with a profound lack of experience, faculty members and instructors must provide instruction that takes into account factors such as the generational background in which the students were raised and the modern family situation of parents too readily doing their children's work for them. Some students may not feel comfortable talking instructors about the concerns and struggles they have with their daily practicums. Therefore, faculty members must set a time slot in their daily schedule to physically visit the practicum site.

Participants with ≥15 years of experience felt unsure how to integrate students' different motivations for learning. Imagawa, Kitayama & Araki (2016) also concluded that instructors and staff of other disciplines should approach students and take initiative in engaging students in conversation. To achieve this, faculty members need to have time in their schedules to identify obstacles to learning and discuss effective teaching methods with instructors. Faculty members must adjust their work schedules to ensure they can visit the practicum site as often as possible during the practicum period. They should also sometimes accompany students on home visits to provide on-site instruction.

Results also showed that respondents with 5 to 15 years of nursing experience did not feel that they have little practical experience and are concerned about leading a practicum, but respondents with ≥15 years of nursing experience felt that students do not know specifically what they want to learn and that they do not prepare in advance and come up with their own questions. This may mean that even with nursing experience, specialist knowledge is required to carry out the difficult tasks of a home health nurse, including visiting a client's home, making assessments and decisions, and providing the needed care within the allotted time by oneself.

The above findings indicate that to prepare students for practicums, lecture content should be revised to help students visualize what home visits look like, make assessments based on case details and provide care within the allotted time. Faculty members must also not make instructors solely responsible for students' learning, but rather maintain close contact with instructors and accompany students on home visits as necessary to provide on-site instruction.

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CASE REPORT / ACTIVITY REPORT

UDL using ICT for Inclusive Learning;

Learning Support for Students with Diverse Learning Styles, Including Students who Need Special Support

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ABSTRACT

The use of ICT is said to be an effective learning support tool for children with disabilities. In addition, though the learning styles of individual are different and vary among individuals, these differences are considered important because of their influence on the academic achievement of individuals (Baderaddin, 2015). Lessons using ICT are said to be effective for any learning method. However, in Japan, it has been found that there are issues with improving reading comprehension and ICT utilization, including that "In the field of school education, the number of local governments and schools that are introducing tablet PCs is gradually increasing, but compared to other countries, the current situation in Japan is that the utilization of ICT is progressing slowly"(Ogawa, 2017).

This study implemented the teaching method of UDL using ICT in the classroom and verified whether it was effective as an inclusive learning teaching method. According to student's evaluation of the lessons by questionnaire, results showed that UDL classes are effective for them. Particularly on questionnaire items ② Overall satisfaction, ③ I want to recommend it to other students, ④ I understood contents of the lesson well, ⑥ English knowledge improved compared to before (until last year), ⑦ Class difficulty is appropriate, ⑧ Class pace is appropriate, ⑨ the voice is clear and easy to hear, ⑩ the letters on the sheet are easy to read, and ⑫ Materials (textbook, workbook, PC only) are appropriate, 100% of responses were positive.

As a result, it was found that UDL-style lessons utilizing ICT are effective for students with special needs and various ways of learning.

＜Key-words＞
inclusive education, universal design learning, ICT utilization

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I. Introduction and Objective

1. Utilization of children and ICT equipment that need special support

According to a survey conducted by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) (2012), 6.5% of the students enrolled in regular classes need special support in terms of learning, particularly the 2.4% of those who have difficulty reading and writing.

According to Okamura, Nishimura, Koga et al. (2013), regarding learning for children with developmental disabilities, the ability to visually associate information is highly effective because of their strong ability to understand information visually. It is recommended that tools such as mind maps and ICT equipment be utilized. In addition, regarding the use of ICT equipment in special needs education, MEXT (2010) stated in the *Guide for the Informatization of Education*, "For the students who need special assistance, it is a useful device that can be used to improve or overcome difficulties in learning or life and enhance the effectiveness of teaching by using it according to the stage, etc. "

In addition, Kagata, Yoshida & Sakaue (2016) said, "ICT equipment is an important tool as a rational consideration for learners who have difficultly to read and write, and effective learning requires special support. It is expected that the burden of learning will be reduced for all, including those who study, and that understanding of the learning content can be promoted. From this, it can be considered that ICT equipment, which is flexible for children with disabilities, will be an effective tool for their learning."

2. Diverse learning styles and effects of ICT utilization

Every student has their own way to learn and their learning styles are different. Learning styles are divided into three sub-types: visual, auditory and kinesthetic/tactile, and this learning theory is called the VAK. In recent years, the VAK learning styles have become quite popular, perhaps due to their simplicity (Pinchot & Paullet, 2014). Willis & Hodson (1999) said that using the VAK theory determined that 29% of elementary and high school learners are visual learners, 34% are auditory, and the remaining 37% are kinesthetic learners. If teachers modify their teaching methods, they can create a classroom environment suitable for all types of students' learning preferences, and they will present materials that appeal to the visual, aural, reading/ writing and kinesthetic learning styles of students (Gregory, 2005). "Learners differ in the ways that they perceive and comprehend information that is presented to them. And providing options for representation is essential." "In properly prepared digital materials, the display of the same information is very malleable and customizable. (Rose & Gravel, 2011).

Therefore, teaching by utilizing ICT is an effective alternative and allows for classes to be tailored to all students with different learning styles.

3. UDL using ICT for inclusive learning

In the USA, educators used Individuals with Education Act (IDEA) to find ways to better serve students with disabilities from the 1970's to the 1990's. IDEA was amended to legally require individualized education plans (IEPs) to give students access to the curriculum in general education classrooms as well as an increased focus on regular education placement (Hehir, 2009). Universal Design for Learning (UDL) is now incorporated into IDEA.

The No Child Left Behind Act (NCLB, 2002) mandates that 100% of students demonstrate adequate yearly progress, meaning that students should meet their state's academic achievement standards (Nevin, Falkenberg, Nullman et al., 2013).

UDL makes a district's curriculum, materials, and school environment more accessible and usable by all students from different backgrounds and with different learning styles (Meyer & Rose, 2002).

In addition, David H. Rose and the three principles of UDL cite "Various methods for presentation," "Various methods for action and expression," and "Various methods for action" as fundamental. Regarding this, Hall, Meyer & Rose (2012) said that "UDL is a framework that enables inclusive teaching design." In this way, UDL was created in the United States for the purpose of inclusive education. UDL can be an effective curriculum tool for not only children with disabilities, but for all children with diverse learning patterns.

Furthermore, in UDL teaching methods, Hall, Meyer, Rose (2012) said, "Teaching methods and materials are flexible and variable, and they are just right between access, challenge and support. It has to be a good balance and allow an individual learner to achieve their goals in the optimal way". "Digital text holds great promise in extending reading and writing skills that are difficult to read. The text is variable and flexible". In this way, ICT utilization classes in UDL are considered to effective teaching methods for students of various learning types, including students who need special support.

Therefore, the purpose of this study is to practice the UDL teaching method using ICT in the class and verify whether the teaching method is effective as an inclusive learning teaching method.

III. Methods

1. Research period

During the one-year period from April 2018 to March 2019, we provided learning instruction using ICT based on UDL in English classes (105 times in a year) during three days a week (each class 50 minutes).

2. Subjects

The students were from a regular high school with 5 classes per grade. Class 2A included 25 students (18 boys, 7 girls), Class 2B included 24 students (18 boys, 6 girls), and Class 3A included 23 students (15 boys, 8 girls). In addition, in Class 2A, a student attended a separate room due to selective mutism, Class 2B included a student with ADHD (student b), a hearing-impaired student (student c), a foreign student (student d), and a student with ASD / LD (student e), and Class 3A included a student with ADHD (student f).

Analysis of 72 learning styles, including 6 students (students a, b, c, d, e, f) who needed support, was conducted using the “Learning Style Checklist” by Takayama & Hirata (2014). Results showed that 5% visual type, 14% auditory type, 19% kinesthetic type, 19% visual and auditory type, 10% visual and kinesthetic type, 9% auditory and kinesthetic type, and 24% almighty type. The results demonstrated that students have a wide variety of learning methods.

3. Questionnaire

The questionnaire used for the verification of the effect of this study was based on the 14-item questionnaire from Hoshino & Muta (2003), “Factors affecting student satisfaction in class evaluation by university students." This questionnaire has been confirmed to be reliable. Also, in order to evaluate the UDL learning guidance based on the above-mentioned three principles of UDL, "easy to read the letters on the sheet", "easy to do pair work and group work", "easy to understand lessons using ICT", 6 items were added: “The letters on the sheet are easy to read,” “Easy pair work and group work,” “Classes using ICT are easy to understand,” “Classes with the same pattern are easy to anticipate,” “Easy to learn and easy to understand grammar items,” and “Pictures, photos and videos helped to understand the content”. To avoid being evaluated by individual teachers, we omitted the item "I felt the enthusiasm of the teachers" by Hoshino & Muta (2003). The final questionnaire included of a total of 19 items (Table 1).

The 19-item questionnaire used in this study was completed by the students who took the classes. For each item, the evaluator circled the most appropriate number, where 1 = “I strongly disagree”, 2 = “I disagree”, 3 = “I agree”, and 4 = “I strongly agree”. The target students were asked to complete the questionnaire on the last day of class at the end of one school year.

<Table 1> Surveys questionnaire

survey items	References
① I was looking forward to going to class	Hoshino, Muta (2003)
② Overall satisfaction	
③ I want to recommend it to other students	
④ I understood the contents of the lesson well	
⑤ I wanted to learn more	
⑥ English knowledge improved compared to before (until last year)	
⑦ Class difficulty is appropriate	
⑧ Class pace is appropriate	
⑨ The voice is clear and easy to hear	
⑩ The letters on the sheet are easy to read	Added based on 3 principles of UDL
⑪ Easy pair work and group work	
⑫ Materials (textbook, workbook, PC only) are appropriate	Hoshino, Muta (2003)
⑬ The tests and assignments were incorporated as appropriate	
⑭ Appropriate return of tasks and follow-up guidance	
⑮ Students had opportunities to speak	
⑯ Classes using ICT are easy to understand	Added based on 3 principles of UDL
⑰ Classes with the same pattern are easy to anticipate	
⑱ Easy to learn and easy to understand grammar items	
⑲ Pictures, photos and videos helped to understand the content	

Ⅲ. Results

1. Learning environment settings

The student's learning environment was conducted in the Language Laboratory (L.L room), which was equipped with a PC for each student, and was equipped with a screen, projector and microphone. Only PowerPoint slides, textbooks, and workbooks were used as teaching materials for the purpose of focusing and structuring learning. Furthermore, consideration was given to each student who needed individual support (Table 2).

2. Learning instruction

To develop classes that all students with diverse learning methods can understand through "Providing various methods" based on the UDL framework.

1) Various methods for presentation

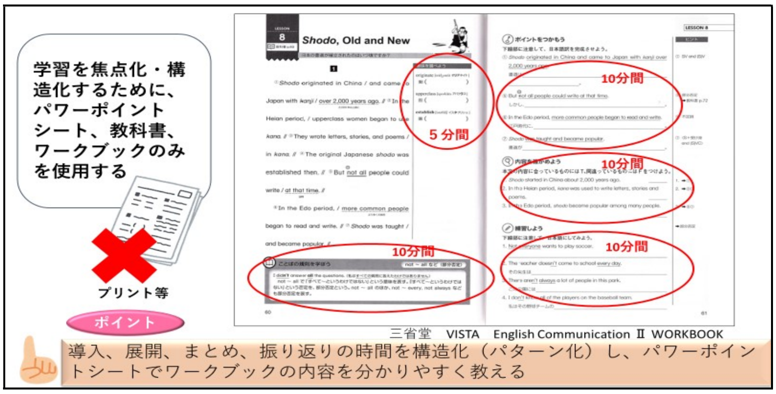
Based on one of the three principles of UDL, "Various methods for presentation," we devised PowerPoint slides by combining diagrams and drawings as “scaffolds” for understanding. It was structured and patterned so that the students' concentration would not be interrupted. Specifically, we created time for introduction, deployment, summary, and reflection, so that each content ends within 5 to 10 minutes (Figure 1). In addition, the Power Point slides describe the pages of the textbooks and workbooks that students have so that they can see which page they are studying, and has a structure that matches the textbooks and workbooks (Figure 2).

<Table 2> Overall learning environment and individual learning environment with reasonable consideration

Class	Student	Learning Environment
2A 2B 3A	All	・Language Laboratory (L.L. room), a classroom with a digital environment ・Visual teaching materials using Power Point slides ・Present all Power Point slides through projector and screen ・Presentation of contents on individual PC, making it possible for individuals to look back and learn repeatedly ・Using microphone (headset microphone) to provide equal listening opportunities for all students
2A	Student a	・Learn in the counseling room or health room ・Power Point slides: Visualization of teaching materials ・iPad: Present the Power Point slides individually and watch the class in Live ・Printer: Submit the written workbook as PDF
2B	Student b	・Easy to ask questions with the seat in front ・Secure an individual place for cool down to use when necessary
	Student c	・Communication Support System corrects sound distortion and makes it easier to hear ・Transmitter sends teacher's voice from headset microphone to device
	Student d	・If it is difficult to understand in Japanese, explain and speak in English.
	Student e	・Easy to ask questions with the seat in front ・Secure an individual place for cool down to use when necessary ・Place a seat near e's friend and ask friend to provide peer support to Student e
3A	Student f	・Provide many opportunities to speak as a group leader ・Give individual counseling regularly to avoid trouble in relationships

In addition, when learning English words, by adding an animation effect to PowerPoint, the English words are presented first and a pattern for confirming the meaning in Japanese is presented, then only Japanese is presented first and the meaning in English is presented. This made it possible to confirm understanding from through two different patterns. In each case, the words were presented one by one to focus attention. In addition to changing the color of the important syntax for grammar learning, we also employed explanatory diagrams that used arrows to visualize the teaching materials for easier understanding (Figure 3).

Furthermore, images such as photographs, illustrations, and videos were used in the PowerPoint slides so that the contents could be accessed even if the understanding of words and grammatical matters was not complete (Figure 4).



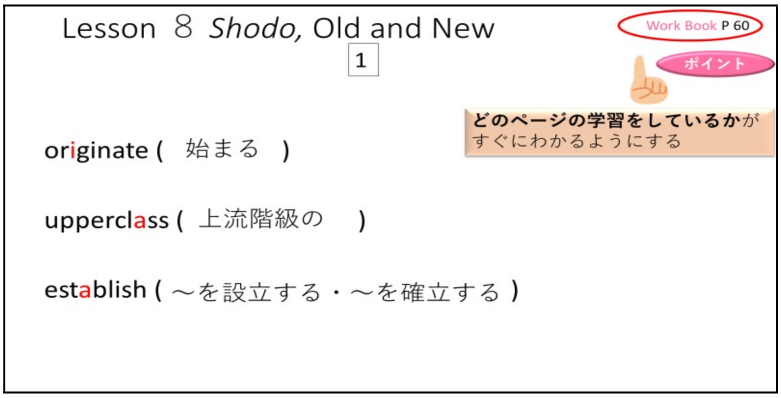
学習を焦点化・構造化するために、パワーポイントシート、教科書、ワークブックのみを使用する

三省堂　VISTA　English Communication Ⅱ WORKBOOK

ポイント

導入、展開、まとめ、振り返りの時間を構造化（パターン化）し、パワーポイントシートでワークブックの内容を分かりやすく教える

<Figure 1> Structuring time allocation



Lesson 8 *Shodo,* Old and New

1

Work Book P 60

ポイント

どのページの学習をしているかがすぐにわかるようにする

originate (始まる)

upperclass (上流階級の)

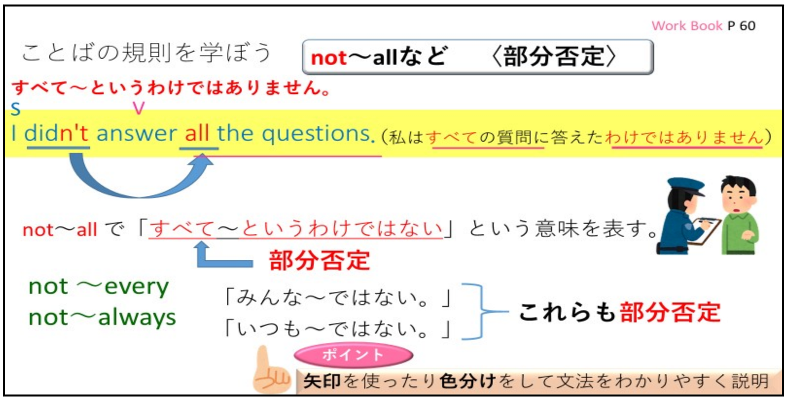
establish (～を設立する・～を確立する)

<Figure 2> UD configuration

ポイント

本文の内容に関する写真やイラスト等の**画像を活用**する

<Figure 3> Visualization of teaching materials



Work Book P 60

ことばの規則を学ぼう　**not～allなど　〈部分否定〉**

すべて～というわけではありません。

I didn't answer all the questions.（私はすべての質問に答えたわけではありません）

not～all で「すべて～というわけではない」という意味を表す。

部分否定

not ～every　「みんな～ではない。」

not～always　「いつも～ではない。」

これらも部分否定

ポイント

矢印を使ったり**色分け**をして文法をわかりやすく説明

<Figure 4> Utilization of images and videos

2) Providing various methods for action and expression

Using UDL's principles to allow students to act and express their thoughts and opinions, consideration was made for friends helping each other as needed during pair reading and pair learning. Students were allowed to express their thoughts through various methods, including reading, writing, listening, and speaking. This allowed students to be able to flexibly select input and output methods according to the individual.

3) Providing various methods for initiatives

In order for the students to be interested in the learning content and to continue their learning, they were provided "various methods for their efforts" as follows. The fonts and figures on the PowerPoint slides were alternated, which made it easier for students to see. The PowerPoint slides had the same structure as the workbooks and textbooks to make it easier for students to work. Construction of learning contents was divided into short sections so that there was no interruption. Students were allowed to study freely and use the Internet on devices such as tablets and mobile phones. PowerPoint slides were designed so that answers can be given through animation to enable individual understanding and confirmation of memory. Students were provided time to repeatedly learn and reflect on their understanding in class. The learning environment was devised by to utilize speaking with a microphone so that all students can hear.

3. Questionnaire results

Throughout the year, we conducted UDL-based English lessons, and asked all target students to evaluate the lessons by questionnaire in the final lesson (Table 3).

As a result, 100% of responses were affirmative for the items ② Overall satisfaction, ③ I want to recommend it to other students, ④ I understood the contents of the lesson well, ⑥ English knowledge improved compared to before (until last year), ⑦ Class difficulty is appropriate, ⑧ Class pace is appropriate, ⑨ The voice is clear and easy to hear, ⑩ The letters on the sheet are easy to read, and ⑫ Materials (textbook, workbook, PC only) are appropriate.

Regarding other items, more than 90% of the students answered positively, "I strongly agree" or "I agree". Moreover, no student answered "I strongly disagree" in all the items.

From these, it was found that the UDL-education lessons using ICT were effective for many students with various learning styles.

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<Table 3> Results of questionnaire proportions

survey items	answers			
	strongly agree	agree	Disag ree	strongly disagree
① I was looking forward to going to class	63%	33%	4%	0%
② Overall satisfaction	58%	42%	0%	0%
③ I want to recommend it to other students	50%	50%	0%	0%
④ I understood the contents of the lesson well	62%	38%	0%	0%
⑤ I wanted to learn more	58%	38%	4%	0%
⑥ English knowledge improved compared to before (until last year)	75%	25%	0%	0%
⑦ Class difficulty is appropriate	54%	46%	0%	0%
⑧ Class pace is appropriate	62%	38%	0%	0%
⑨ The voice is clear and easy to hear	67%	33%	0%	0%
⑩ The letters on the sheet are easy to read	75%	25%	0%	0%
⑪ Easy pair work and group work	63%	33%	0%	0%
⑫ Materials (textbook, workbook PC only) are appropriate	62%	38%	0%	0%
⑬ The tests and assignments were incorporated as appropriate	71%	25%	4%	0%
⑭Appropriate return of tasks and follow-up guidance	63%	33%	4%	0%
⑮ Students had opportunities to speak	63%	33%	4%	0%
⑯ Classes using ICT are easy to understand	68%	28%	4%	0%
⑰ Classes with the same pattern are easy to anticipate	58%	38%	4%	0%
⑱ Easy to learn and easy to understand grammar items	67%	29%	4%	0%
⑲ Pictures, photos and videos helped to understand the content	71%	25%	4%	0%

IV. Discussion

In Japan's educational settings, the ratio of teachers who use ICT for teaching is low. According to the MEXT (2019), the usage status of digital devices in schools is "Japan has the shortest usage time of digital devices in lessons (language, mathematics, science) and is the lowest among OECD member countries".

Hall, Meyer & Rose (2012) said, "The medium of printing is a barrier for people with reading disabilities. It is a medium that tries to handle all with one, and cannot be customized to meet individual needs". Even at the target schools of this study, the mainstream methods were paper, textbooks, and blackboards, though, there are many students with individual needs.

However, this study revealed that using ICT for all students, including those with individual needs, promotes understanding of learning. In addition, Hall, Meyer & Rose (2012) added, "A well-designed digital text is something that learners can adapt to meet the needs of diverse learners. It doesn't force you to match the text". This means that UDL classes are learner-centered classes, and can be considered to be a learning method that leads to "independent learning" required by the MEXT. According to Kagata, Yoshida & Sakaue (2016) using UDL to create classes is not a perfect solution, but allows instructors to create classes that promote student understanding and motivation to continue learning. And such a viewpoint based on UDL can be an effective guideline for more inclusive lesson construction aiming at creating diverse and flexible learning mechanisms.

In addition, nowadays in Japan, inclusive education is required because the number of children who need special support is increasing. According to Kagata, Yoshida & Sakaue (2016) UDL's learning guidance is "the foundation of an inclusive education system that responds to individual differences and diversity that allows children with and without disabilities to learn in the same place". Therefore, by implementing UDL in all schools, it is possible to realize inclusive education where children can learn together in one classroom without being divided into special support classes and regular classes.

Therefore, it was found in this study that UDL classes are inclusive classes for all students with various backgrounds and learning methods, including developmental disabilities, hearing impairments, and international students.

However, the limitation of this study is that the number of participating students was only 74 and it is limited to English lessons. In the future, it will be necessary to increase the number of subjects and settings to verify results.

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