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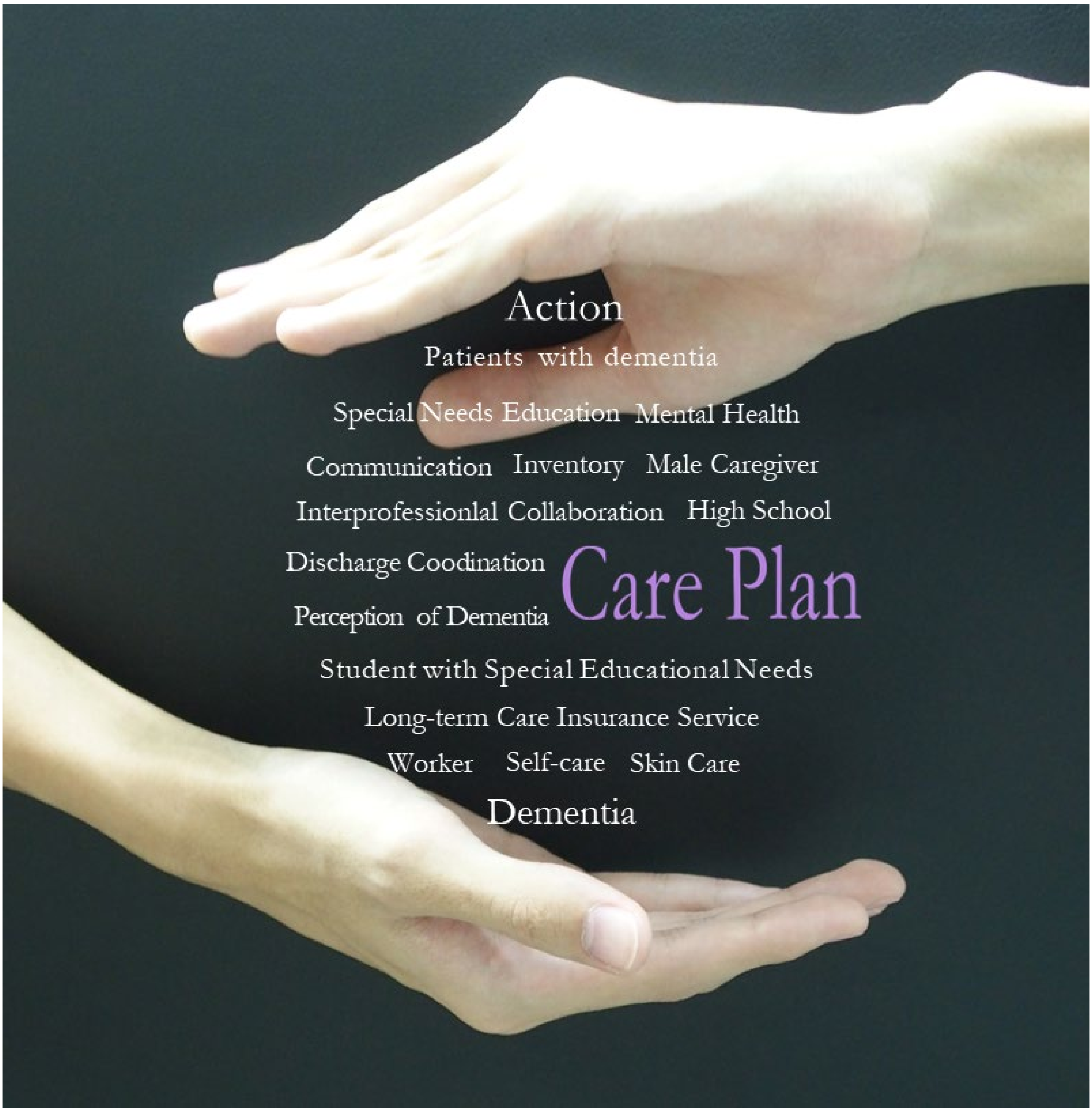

ASIAN SOCIETY OF HUMAN SERVICES

Asian Society of Human Services

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ORIGINAL ARTICLES

SHORT PAPERS

REVIEW ARTICLE

Human Services

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ORIGINAL ARTICLE

Characteristics of Male Caregivers Who Provide Skin Care to a Mother or Wife with Dementia

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ABSTRACT

This study aimed to confirm the characteristics of male caregivers who provide skin care to a mother or wife with dementia living at home.

Participants were 90 male caregivers of a female family member with dementia who was living at home. We recruited participants from among: 1) caregivers of inpatients at the Special Hospital for Dementia, 2) members of the Male Caregivers Association, and 3) members of the Dementia Family Association. Participants completed a self-administered questionnaire. The study period was from May 2017 to January 2018. We investigated the actual state of skin care and nursing care burden. We assessed care burden using the question "Do you have a physical, emotional, social, or financial care burden?" and the Zarit Caregiver Burden Scale-8. Participants' self-esteem was assessed using the Rosenberg Self Esteem Scale and the question "Do you have fun in your life?"

Caregivers who were the husband of the care recipient tended to be older. Those who were sons of the care recipient tended to be long-term caregivers, and their care recipient (mother) tended to be older. Care recipients who were wives received more skin care. Male caregivers that provided skin care had higher self-esteem than those that did not.

We found that caregivers who were husbands wanted their wife to look beautiful or healthy. The key characteristic of male caregivers is treat oneself and mother or wife with dementia.

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I. Introduction

Japan has experienced great changes in gender roles. The reasons for these changes are multi-faceted, and include changes in population and family structure, an increase in social progress among woman, and an increase in unmarried men1). Traditionally, women assumed the role of family caregiver. However, the number of male caregivers who provide care for a family member with dementia living at home doubled from 18.6% in 1999 to 34.0% in 20162). Male caregivers have been reported to experience some problems in providing care3,4), and tend to not complain and not seek counseling or support from friends5). A paper reporting a study focused on murder6) showed that home care was the third most common setting for murder, and most such murderers were husbands. In addition, 72.3% of persecutors of older adults were male caregivers and 74.3% of victims of abuse were female. This suggests that family caregiving is difficult for men, and they may not easily be able to speak up if they experience difficulty.

Provision of care to family members is important to allow continuation of home care and treatment. Support for caregivers includes consideration of their physical, mental, and social health. The greatest cause of care stress for male caregivers is reported to be high concern with masculinity; to optimize their health, male caregivers need a caregiving style that goes beyond traditional gender rules7).

Male caregivers may have confusion around skin care for a care recipient who is their mother or wife, including knowing how to perform skin care and select cosmetics. An older adult's skin is delicate and characterized by a thin layer of subcutaneous fat8). Therefore, knowing how to perform appropriate skin care suitable for this skin type without expert knowledge is important to improve an older adult's quality of life9).

In meetings of family or male caregivers, the present researchers have noted that when a male caregiver's wife with dementia was wearing make-up, it gave the impression that the male caregiver loved their wife and wanted to continue caring for them. A potential benefit of providing skin care to a care recipient with dementia is that skin care appears to be related to quality of life in the context of long-term care. However, in Japan, the actual situation of male caregivers providing skin care has not been investigated, and no information is available regarding the effect of skin care provision on the caregiver role. This issue has not previously been studied, and this paper reports interesting results regarding this topic.

This study object was conducted to determine the characteristics of male caregivers who provide skin care to a mother or wife living at home with dementia.

Definition of this study of skin care: Concretely, hot towel, massage, cosmetic creams, milky lotions, skin lotions, cosmetic foundations and lipsticks are cited as the cosmetics are cited as the facial skin care.

II. Subjects and Methods

1. Participants

Participants were 90 male caregivers who were living at home with a female family member with dementia. We recruited participants from among: 1) caregivers of inpatients at the Special Hospital for Dementia, 2) members of the Male Caregivers Association, and 3) members of the Dementia Family Association. Participants completed a self-administered questionnaire. The study period was from May 2017 to January 2018.

2. Research methods

This study used a quantitative research design with data gathered using a self-administered questionnaire.

3. Measures

1) Basic male caregiver variables

We collected data on participants' relationship with the care recipient (mother or wife), age, employment status, economic status, care difficulty, nursing care hours, long-term care need (months), household composition, skin care frequency, and fun in daily life. Participants also completed the shortened version of the Zarit Caregivers Burden Interview (J-ZBI_8), and the Japanese version of the Rosenberg Self Esteem Scale (RSES-J). The J-ZBI_8 consists of eight items and is a care burden scale that was translated into Japanese by Arai et al. Its reliability and validity have been verified, and it has been used in many previous studies in Japan. Responses are on a five-point Likert-type scale: never = 0, rarely = 1, sometimes = 2, quite often = 3, and nearly always = 4. The RSES-J consists of 10 items, and the scale has been most commonly used in countries outside Japan. The reliability and validity of the RSES-J were established in 2007. The scale has four response options: Strongly agree = 0, Agree = 1, Disagree = 2, and Strongly disagree = 3.

2) Basic care recipient variables

We collected data on the care recipients' age, dementia diagnosis, and level of certification of long-term care need.

4. Data analyses

We first divided our sample into two groups (husband or son, provides skin care or not). These results were expressed as mean±standard deviation, with categorical variables reported as percentages. Student's t-tests, Mann–Whitney U-tests, or χ^2 tests were used to evaluate differences between the two groups. All statistical analyses were performed using the Japanese version of SPSS version 22.0 for Windows. The level of statistical significance was set at <0.05 (two-tailed).

5. Ethical approval

We obtained ethical approval for this study from the Ethics Committee of Fukuoka University (approval code: 2017M040). The study conformed to the provisions of the Declaration of Helsinki in 1995 (as revised in Tokyo in 2004). Consent was obtained from hospitals, the care facility, and the Men's Caregiver and Dementia Family Associations. The purpose of the study was explained orally and in writing to eligible participants. Participants were informed that their information and data would be treated confidentially. Return of a completed questionnaire was considered provision of consent to participate.

III. Results

1. Basic variables of male caregivers

There were significant differences between the male caregiver groups based on the relationship with the care recipient (mother or wife). In particular, there were significant differences in nursing care hours and long-term time care need (months) for male caregivers providing care for their wife. RSES-J scores were significantly higher among male caregivers who provided skin care compared with those that did not (Table 1).

Table 1 Male Caregivers contents. n=90

Variable			n	Results (%)	
.		Husband	55	(61.0)	
		Son	35	(39.0)	
Age	Husband	Mean age (SD)	75	SD 6.6	**
	Son		66	SD9.4	
	mean age		72	SD8.9	
Employment status	Husband	Employed	21	(38.1)	
		Unemployed	34	(39.0)	
	Son	Employed	15	(42.8)	
		Unemployed	20	(39.0)	
Economic conditions	Husband	sufficiently wealthy	26	(47.3)	
		some hindrance to life	25	(45.6)	
		hindrance to life	4	(7.2)	
	Son	sufficiently wealthy	16	(45.7)	
		some hindrance to life	18	(51.4)	
		hindrance to life	1	(2.9)	
I feel Care difficulty		in body	55	(60.4)	
		in spiris	69	(75.8)	
		society	35	(38.5)	
		economy	29	(31.9)	
Nursing care hours	Husband	The mean time spent providing nursing care.		4.0 SD1.2	
	Son			3.4 SD1.4	
Long time care need (month)	Husband	Mean month (SD)		48 SD 42.6	**
	Son			89 SD 6.2	
J-ZBI_8*	Husband	Mean point score		10.5 SD 5.1	
	Son			12.8 SD 1.2	
RSES-J	Husband	mean point score（SD)		23.8 SD 4.6	
	Son			24.9 SD 1.8	

*Japanese version of the Zarit Caregiver Burden Scale -8 Student's-test *p＜0.05

2. Basic variables of care recipients

There were significant differences in care recipient variables by relationship to the caregiver. Care recipients that were mothers tended to be older than those that were wives. For care recipients who were wives, the most common dementia diagnosis was Alzheimer's type, followed by Lewy body type, and frontotemporal lobar degeneration type. Among care recipients who were mothers, the most common dementia diagnosis was Alzheimer's type, followed by Lewy body type, and cerebrovascular type. The most common level of certification of long-term care need among care recipients who were wives was Care Need Level 3, with Levels 4 or 5 being most common among care recipients who were mothers (Table 2).

Table 2 Overview of the people with dementia

Variable			Results (%)	
	Caregiver's relation to the patient .	Wife : mean age	73 SD 6.6	**
		Mother : mean age	89 SD 6.2	
Diagnosis of dementia	Wife	Alzheimer's type	28 (50.9)	
		Lewy bodies	18 (32.7)	
		Frontotemporal lobar degeneration	6 (10.9)	
		Cerebrovascular type	3 (5.5)	
	Mother	Alzheimer's type	19 (54.3)	
		Lewy bodies	10 (28.6)	
		Frontotemporal lobar degeneration	1 (2.8)	
		Cerebrovascular type	5 (14.3)	
Level of certification of long-term care need	Wife	Care support 1 or 2	3 (5.5)	
		Care need 1	6 (10.9)	
		Care need 2	5 (9.1)	
		Care need 3	13 (23.6)	
		Care need 4	8 (14.5)	
		Care need 5	16 (29.1)	
		Not applicable or unspecified	4 (7.3)	
	Mother	Care support 1 or 2	3 (8.5)	
		Care need 1	0 0.0	
		Care need 2	4 (11.4)	
		Care need 3	7 (20.0)	
		Care need 4	8 (22.9)	
		Care need 5	8 (22.9)	
		Not applicable or unspecified	5 (14.3)	

Note. Care support is a less intensive level of support required than care need.
The numbers refer to increasing levels of care required.
Student's-test *$p < 0.05$

3. Provision of skin care and skin care frequency

In total, 45 (49.5%) of male caregivers provided skin care to their care recipient. There were differences in skin care provision and frequency of skin care provided to mothers and wives. For wives, the most common skin care frequency was every day (53%), followed by when going out (29.1%). For mothers, the most common skin care frequency was when going out (53%), followed by every day (46.0%) (Table 3).

Table 3 : Actual state of skin care.

Variable	Relationship with the caregiver.			n	Results (%)	
I provide skin care to a wife or mother.	husband			34	(62.0)	**
	son			11	(32.0)	
		rank				
Skin care of frequency	husband	1	every day		(53.0)	**
		3	some times a week.		(18.9)	
		2	it goes out		(29.1)	
	son	2	every day		(36.0)	
		3	some times a week.		(18.0)	
		1	it goes out		(46.0)	

Mann-Whitney U test ** : P＜0.01

4. Characteristics of male caregivers who provided skin care

The group of male caregivers that provided skin care reported a lower care difficulty than those who did not provide skin care. In addition, the RSES-J scores in the group that provided skin care were higher than in the group that did not provide skin care (Table 4).

Table 4. male caregiver`s characteristics of provide skin care to a wife or mothe

Variable		I provide skin care to a wife or mother. Yes (%)	No (%)	X2	
I have care difficulty in my body.	Yes	24(26.4)	33(36.3)	p＜0.001	
	No	12(13.2)	15(16.5)		
I have care difficulty in my spirits.	Yes	27(29.7)	44(48.4)	p＜0.001	
	No	9(9.9)	4(4.4)		
I have care difficulty society.	Yes	16(17.6)	20(22.0)	p＜0.001	
	No	20(22.0)	28(30.8)		
I have care difficulty economiy.	Yes	13(14.3)	17(18.7)	p＜0.001	
	No	23(25.3)	31(34.1)		
I have fun in my life.	Yes	35(38.5)	41(45.1)	p＜0.001	
	No	1(1.1)	3(3.3)		
		mean (SD)		Z-Value	
J-ZBI_8		38.99(8.7)	45.14(7.4)	-1.145	n.s
RSES-J		50.63(11.1)	35.39(12.6)	-2.894	*

X2: individual variable of comparison between skin care and not.
J-ZBI: Japanese version of the Zarit Caregiver Burden Scale -8
RSES-J:Japanese version of the Rosenberg Self-Esteem Scale.
*: p＜0.05 n.s.: not signinficant

IV. Discussion

1. Participant characteristics

This study investigated care for older adults by older adults, with many participants and care recipients being old-old. We found that on average, caregivers that were husbands had cared for a younger wife for more than 4 years and sons had cared for a mother for more than 7 years. When male caregivers who were sons began providing home care, many were in their late fifties.

In Japan, the mandatory retirement ages are 60 years (79.3%) and 65 years (16.4%)[14). Therefore, male caregivers who were sons of their care recipient most likely began caregiving for their mother while continuing to work. However, retirement at age 60 years is decreasing, whereas retirement at ≥65 years is increasing[14). This may indicate an overall increasing retirement age. To achieve an ageless society in which older adults can play active roles, it is important to enhance and strengthen employment opportunities/assistance and re-employment support for older adults. However, realization of an ageless society in which older adults can play active roles depends on family caregivers. An investigation in 2012 suggested that resignations and changes of job by family caregivers had increased[15). Male caregivers who provide care for a parent may be more affected by factors such as resignation and changes of job to allow them to provide care for their family member. It may be necessary to direct attention to male caregivers (especially those who are sons of their care recipient) to determine if they have problems providing care while continuing to work. In Japan, the average age of male caregivers providing care for a parent is 40–60 years, meaning that there is a high probability that they are employed[16). Perpetrators of abuse of older adult associated with home care are often male (70%), and in ≥40% cases were the care recipient's son[6). If a caregiver loses their job, they are at increased risk for becoming poor; maintenance of good health is indispensable to social participation and poverty may affect health status, which in turn may form a vicious cycle.[17) Collaboration with public health policies is necessary to support male caregivers who are providing care for a parent to continue to work while providing home care.

2. Effect of provision of skin care

Our findings suggested that care recipients who were wives received more skin care than those who were mothers. An effect of provision of make-up and skin care is improving the care recipient's health; for example, make-up means the care recipient seems to be younger in both appearance and attitude, as there is a correlation between appearance and visceral function[18). Therefore, make-up is an important part of skin care. This suggests that provision of skin care is an expression of a husband wanting their wife with dementia to look beautiful and healthy. Furthermore, skin care may enhance social communication[19,20) and relationships[9). Caregivers whose care recipient was their wife reported more communication with friends and social relationships than those whose care recipient was their mother.

3. Characteristics of male caregivers who provide skin care

An effect of applying make-up is stabilizing brain waves, which provides oscillation control for sensory neurons21). This may help to reduce symptoms of dementia by regaining function of nerves and emotions. A person with dementia may respond to chemical stimuli from points on their skin or mucosal membrane that are sensitive to enhancing memory and cerebral function. Therefore, application of make-up or skincare may also help to reduce the symptoms of dementia, and the associated stimuli may help to relieve anxiety and maintain a stable mental condition22). A cause of abuse by caregiver that a cause of symptom of dementia from an unsettled state of cerebral function and abuse to reduce a stress reaction circulates through a stress reaction and evil.23) Therefore, by reducing symptoms of dementia, skin care may help to reduce nursing care burden for male caregivers.

Although we found no significant differences in care difficulty between caregivers who provided skincare and those that did not, there were significant differences in reported care difficulty. We cannot adequately explain how male caregivers experience care difficulty and care burden. However, according Pearlin's stress coping model, the care burden scale relates to care stressors and care difficulty scale to care resources. This suggests that male caregivers who provide skin care to a mother or wife with dementia have more care resources than those who do not provide skin care. In addition, male caregivers who provided skin care to a mother or wife with dementia had higher self-esteem than those who did not provide skin care. A person has high self-esteem is mental who is unattractive either in appearance or character and attended kindly and think of others13). Therefore, male caregivers who provide skin care to a care recipient who is their mother or wife think kindly of the care recipient.

V. Conclusion

Male caregivers who provide skin care to a mother or wife with dementia tend to have high self-esteem, abundant care resources, and think kindly of their care recipient. In addition, application of make-up and provision of skin care may reduce symptoms of dementia and help to resolve nursing care difficulty for male caregivers.

VI. Study Limitations

A limitation of this study was the small sample size. A comparative study including other variables will be required to further investigate the topic; for example, male caregivers' employment situation and experience of long-team nursing care.

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ORIGINAL ARTICLE

A Current Status of Care Plans for Independent Excretion in Japan's Long-term Care Insurance Services

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ABSTRACT

To clarify the current status of care plans for independent excretion in Japan's long-term care insurance services, a self-administered, anonymous questionnaire survey was conducted, involving care planners working regularly in long-term care/welfare facilities or home care support offices throughout Japan. The questionnaire consisted of questions regarding care plans to achieve/maintain independent excretion. The rate of creating excretion care plans for facility users was significantly higher in long-term care/welfare facilities compared with home care support offices($p<0.01$). Among the contents of information collected to create care plans for independent excretion, <the frequency of urinary incontinence>, <bowel movements>, and <purgative use> were examined significantly less frequently in home care support offices($p<0.01$), while <discharge destination> was confirmed significantly more frequently in long-term care facilities($p<0.01$). The rate of considering <discharge destination> as an important factor for independent excretion was significantly higher in long-term care facilities($p<0.01$). Thus, the status of care plans for independent excretion and contents of information collected on such plans varied according to the type of service. The results indicate the necessity of enhancing care planners' awareness, educating them focusing on functional recovery as part of practical skill education, and incorporating the learning of care management methods, covering support for independent excretion, into senior CM training to promote independent excretion care in Japan's long-term care insurance services.

＜Key-words＞
independent excretion care, care plan, long-term care insurance service

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I. Introduction

Aging is progressing more rapidly in Japan compared with other advanced countries, and its measures to address aging issues are drawing global attention. Among the aging issues faced by Japan, growing social insurance payments are especially serious, and support for older persons to lead an independent life is regarded as a challenge. The government emphasizes the necessity of promptly shifting the site of long-term care from facility to home, and establishing community-based integrated care systems to help older persons continue to live in their communities and maintain their dignity. Toward the achievement of these goals, "independent excretion" is key to maintain older persons' home lives. According to a previous survey examining the status of support for the resumption of home life in long-term care facilities, "the need for excretion assistance" was a factor associated with difficulty in discharging facility users to home (Social Security Council nursing care payment Subcommittee article, 2017). Excretion assistance increases caregiving burdens, and negatively affects the resumption of home life.

Concerning care to achieve/maintain independent excretion, medical institutions began to calculate independent excretion guidance fees with a revision of medical fees in FY2016. As part of this new category, comprehensive urination care through multi-professional team approaches also started. However, in previous studies, acute care ward nurses provided care to promote independent excretion as a routine procedure due to their busy post and insufficient manpower. Furthermore, in acute care hospitals, shortened hospital stays made it difficult to help patients achieve/maintain independent excretion only through primary care, and nurses experienced mental conflicts in such a situation. They also noted the necessity of continuously providing independent excretion care after transfer as a challenge (Kurokawa, Fujio, Kodaira et al., 2017).

In Japan's long-term care insurance services, excretion support fees were added when medical fees were revised again in 2018. These fees are based on analysis of factors leading to the necessity of excretion assistance, the creation of individualized support plans, and provision of excretion support. In fact, users of facilities with a lower diaper use rate have been reported to be more independent in all activities of daily living (ADL) (Kodaira, Fujio & Takeuchi, 2014). These facilities individually created care plans (Kodaira, Nomura & Inoue, 2010), confirming the importance of creating individualized support plans to promote independent excretion.

On the other hand, care management focusing on functional recovery remains insufficient even after 20 years from the establishment of the long-term care insurance system. In order to provide sufficient functional recovery care in this system, it is necessary for care managers (CMs) to share the idea of such care, and acquire an appropriate sense of value, knowledge, and skills (Shirasawa, 2015). Among care management procedures, care plans are thought to be especially important, as it determines care policies (Shirasawa, Hashimoto & Takeuchi, 2000). Thus, care plans may play an important role in promoting functional recovery care as part of long-term care insurance services. However, the rate of focusing on functional recovery when creating care plans is still low, and promoting care plans from the perspective of multi-professional collaboration may be another challenge (Morishita, 2005).

Under these circumstances, the present study examined the status of care plans for independent excretion in Japan's long-term care insurance services.

II. Definition of term

The operational definition of terms used in this study is as follows.

Independent excretion care:

Similarly, 'independent excretion care' is defined as part of functional recovery care and 'supporting excretion using general or portable toilets, rather than defecating/urinating using diapers', based on the terminology used for caregiver workshops held by the Japanese Council of Senior Citizens Welfare Service. These workshops aim to help caregivers learn functional recovery care skills. Since 2003, when the first workshop was held, 100 to 150 special nursing homes for the elderly have participated each year. As an index to conveniently measure outcomes, the council recommends the diaper use rate.

Ⅲ. Subjects and Methods

1. Subjects and Procedures

Using a system to search for care facilities/daily life-related information organized by the Ministry of Health, Labour, and Welfare, and adopting the cluster sampling method, 500 long-term care facilities, 500 long-term welfare facilities, and 500 home care support offices throughout Japan were selected, and 1 care planner who worked regularly in each of these facilities/offices was included (a total of 1,500 care planners). First, 20 prefectures were selected through complex stratification, and then offices and facilities based in these prefectures were extracted as simple random samples, asking their managers, who consented to cooperate, to select appropriate regular care planners for the study based on their own criteria.

2. Data Collection

As part of this cross-sectional study, a self-administered, anonymous questionnaire survey was used, involving the care planners, and their responses were collected by mail. The period of data collection was between September and October 2018. The study items were as follows:

1) Basic attributes: The sex, age, affiliation, last education degree, basic qualifications,

and total length of care plans experience.

2) Excretion care plan-related items: The statuses of collecting excretion-related information, creating excretion care plans, and care plans when excretion assistance is required. The questions to examine these items were answered on a 4-point scale. Additionally, the detailed contents of excretion care plans and related challenges were answered in a free-description space.

3) Contents of information collected for care plans to achieve/maintain independent excretion: Among the items listed on a comprehensive assessment sheet used by the Japanese Council of Senior Citizens Welfare Service for workshops to improve caregiving skills, 4 related to independent excretion were adopted: <the desire to defecate/urinate>, <frequency of urinary incontinence>, <bowel movements>, and <purgative use>. Subsequently, 15 factors influencing elderly patients' ADL and resumption of home life were extracted from the findings of previous studies: <nutritional condition>, <eating behavior>, <activity level>, <dementia symptoms>, <symptomatic stability>, <content of treatment>, <ability to maintain a sitting position>, <ability to maintain a standing position >, <wheelchair use>, <independent wheelchair manipulation>, <walking assistance>, <independent walking>, <dressing>, <being cared for by a single nurse>, and <experience-based senses>. Furthermore, <patients' own desires>, <respect for their dignity>, <discharge destination>, and <others> were originally added as excretion-related ethical perspectives. Thus, there were a total of 22 contents, and the questions to examine these contents were answered on a 2-point scale.

4) Important factors for independent excretion from the perspective of care planners: There were 22 items, similar to the case of 3). The questions to examine these items were answered on a 4-point scale.

3. Statistics analysis

After obtaining descriptive statistics for each item, the study offices and facilities were divided into 3 groups based on their types of long-term care insurance service: long-term care facilities, long-term welfare facilities, and home care support offices. To examine associations in each case, the chi-square, Fisher's exact test, or Kruskal-Wallis test was used for inter-group comparison. Multiple comparison (Mann-Whitney U-test, adopting the Bonferroni correction method) was also performed to examine differences among the groups. The significance level was set at 0.05, and IBM SPSS Statistics 24 was used for statistical analysis.

4 . Ethical considerations

Written explanations of ethical considerations for the study facilities/offices and participants, such as voluntary cooperation and anonymity maintenance, were provided. A returned consent form and returned response to the questionnaire were regarded as consent to cooperate with the study from a study facility/office and participant, respectively. This research was conducted with approval of the ethics committee of the Faculty of Health Science and Nursing, Juntendo University (Approval No. 30-03).

Ⅳ. Results

1. Subject Characteristics

Among the 1,500 care planners engaged in long-term care insurance services, 160 responded (response rate: 10.7%), and 159 valid responses from them were analyzed (valid response rate: 10.6%). The number of those belonging to each group based on the type of long-term care insurance service was as follows: long-term care facilities: 48 (30.2%), long-term welfare facilities: 43 (27.0%), and home care support offices: 68 (42.8%).

Table 1 outlines their basic attributes. The largest age group was those aged 40-49 (57; 36.1%). Females were a majority (104; 65.8%). The most frequent last education degree was vocational school graduate (47; 29.6%), followed by senior high school graduate (44; 27.7%); they totally accounted for the majority. The most frequent basic qualification was care worker (128; 81.5%). When limiting to qualifications for CMs, the numbers of those only qualified as a certified CM (55; 35.7%) and those with no CM qualification (48; 31.2%) were the largest and second largest, respectively. The most frequent length of care plans experience was 1-5 years (48; 32.0%). The last education degree ($p<0.05$) and CM qualification ($p<0.01$) significantly varied according to the type of service. Adjusted residual analysis revealed that there were significantly fewer vocational school graduates in long-term welfare facilities, and significantly fewer junior college graduates in long-term care facilities. With regard to CM qualifications, the rates of being qualified as both a senior CM and certified CM and those only qualified as a senior CM were significantly higher in home care support offices, while that of being only qualified as a certified CM was significantly higher in long-term care/welfare facilities.

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<Table 1> Subject Characteristics

n(%)

item		total		① Long-term care facilities		② Long-term welfare facilities		③ Home care support offices		p value	
Age ※2 (N=158)	20-29	3	(1.9)	1	(2.1)	2	(4.7)	0	(0.0)	0.201	
	30-39	32	(20.3)	10	(21.3)	8	(18.6)	14	(20.6)		
	40-49	57	(36.1)	19	(40.4)	16	(37.2)	22	(32.4)		
	50-59	47	(29.7)	16	(34.0)	13	(30.2)	18	(26.5)		
	60-69	18	(11.4)	1	(2.1)	4	(9.3)	13	(19.1)		
	70-79	1	(0.6)	0	(0.0)	0	(0.0)	1	(1.5)		
Sex ※1 (N=158)	Female	104	(65.8)	31	(64.6)	25	(59.5)	48	(70.6)	0.482	
	Male	54	(34.2)	17	(35.4)	17	(40.5)	20	(29.4)		
Educational background ※2 (N=159)	Senior high school	44	(27.7)	12	(25.0)	16	(37.2)	16	(23.5)	0.047	*
	Vocational school	47	(29.6)	19	(39.6)	7	(16.3)	21	(30.9)		
	Junior college	26	(16.4)	2	(4.2)	11	(25.6)	13	(19.1)		
	University	40	(25.2)	14	(29.2)	8	(18.6)	18	(26.5)		
	Graduate school	2	(1.3)	1	(2.1)	1	(2.3)	0	(0.0)		
Type of profession ※1 (N=157)	Medical profession	29	(18.5)	11	(23.4)	4	(9.5)	14	(20.6)	0.202	
	Welfare profession	128	(81.5)	36	(76.6)	38	(90.5)	54	(79.4)		
Type of care managers ※1 (N=154)	Senior and certified	14	(9.1)	1	(2.2)	0	(0.0)	13	(19.1)	<0.001	**
	Senior only	37	(24.0)	6	(13.0)	5	(12.5)	26	(38.2)		
	Certified only	55	(35.7)	22	(47.8)	20	(50.0)	13	(19.1)		
	No CM	48	(31.2)	17	(37.0)	15	(37.5)	16	(23.5)		
Years of experience ※1 (N=150)	1-5	48	(32.0)	17	(37.8)	12	(32.4)	19	(27.9)	0.851	
	6-10	42	(28.0)	11	(24.4)	12	(32.4)	19	(27.9)		
	11-15	43	(28.7)	13	(28.9)	8	(21.6)	22	(32.4)		
	>16	17	(11.3)	4	(8.9)	5	(13.5)	8	(11.8)		

※1 χ^2 test、※2 Fisher's exact test　*: P<0.05、**: P<0.01

2. Relationship between the type of service and status of excretion care plans

Table 2 explains the relationship between the type of service and status of excretion care plans. The latter markedly varied according to the former, as excretion care plans were created by care planners more frequently in long-term care/welfare facilities compared with home care support offices.

<Table 2> Relationship between the type of service and status of excretion care plans

	Type of service										p value※2		
	① Long-term care facilities			② Long-term welfare facilities			③Home care support offices						
	n	Avarage value	Standard deviation	n	Avarage value	Standard deviation	n	Avarage value	Standard deviation	p value※1	①vs②	①vs③	②vs③
Collecting excretion information	48	3.9	0.4	43	3.7	0.5	68	3.7	0.4	0.124	0.143	0.127	0.492
Creating excretion care plans	48	3.3	0.5	42	3.2	0.6	65	3.0	0.4	<0.001 **	0.830	<0.001 **	0.002 **
Care plans when excretion assistance is required	48	3.2	0.6	41	3.0	0.5	68	3.1	0.5	0.275	0.149	0.220	0.633

4 methods : 1. Not at all 2. Not much 3. When necessary 4. Be sure to do (Calculate average value and standard deviation)

※1 Kruskal Wallis-test、※2 Mann-Whitney U-test (Bonferroni) *: P<0.05、**: P<0.01

3. Relationship between the type of service and contents of information collected to create care plans for independent excretion

Table 3 outlines the relationship between the type of service and contents of information collected to create care plans independent excretion. The rates of collecting information regarding <the frequency of urinary incontinence>, <purgative use>, <walking assistance>, <independent walking> (p<0.05 in all cases), <bowel movements>, <dressing>, <being cared for by a single nurse>, and <discharge destination> (p<0.01 in all cases) significantly varied according to the type of service. Adjusted residual analysis revealed significantly higher and lower rates for <the frequency of urinary incontinence> in long-term care facilities and home care support offices, respectively. Similarly, the rates for <bowel movements> and <purgative use> were markedly lower in home care support offices. The rates for <walking assistance> and <independent walking> were significantly lower in long-term welfare facilities. The rate for <dressing> was markedly higher in home care support offices and lower in long-term welfare facilities. The rate for <being cared for by a single nurse> was significantly higher in long-term care facilities and lower in home care support offices. The rate for <discharge destination> was markedly higher in long-term care facilities and home care support offices, and lower in long-term welfare facilities.

<Table 3> Relationship between the type of service and contents of information collected to create care plans for independent excretion

n(%)

item		total		Type of service						p value	
				① Long-term care facilities		② Long-term welfare facilities		③ Home care support offices			
The desire to defecate/uninate ※1	Yes	151	(96.8)	47	(100.0)	40	(95.2)	64	(95.5)	0.327	
(N=156)	No	5	(3.2)	0	(0.0)	2	(4.8)	3	(4.5)		
Incontinence frequency	Yes	105	(67.7)	39	(83.0)	28	(66.7)	38	(57.6)	0.017	*
(N=155)	No	50	(32.3)	8	(17.0)	14	(33.3)	28	(42.4)		
Bowel movements	Yes	87	(56.5)	30	(65.2)	29	(69.0)	28	(42.4)	0.009	* *
(N=154)	No	67	(43.5)	16	(34.8)	13	(31.0)	38	(57.6)		
Purabative use	Yes	119	(76.3)	39	(83.0)	36	(85.7)	44	(65.7)	0.025	*
(N=156)	No	37	(23.7)	8	(17.0)	6	(14.3)	23	(34.3)		
Nutritional condition	Yes	89	(57.4)	30	(63.8)	23	(56.1)	36	(53.7)	0.551	
(N=155)	No	66	(42.6)	17	(36.2)	18	(43.9)	31	(46.3)		
Eating behavior	Yes	121	(78.6)	41	(85.4)	27	(67.5)	53	(80.3)	0.113	
(N=154)	No	33	(21.4)	7	(14.6)	13	(32.5)	13	(19.7)		
Activity level	Yes	95	(61.7)	34	(72.3)	25	(62.5)	36	(53.7)	0.131	
(N=154)	No	59	(38.3)	13	(27.7)	15	(37.5)	31	(46.3)		
Dementia symptoms ※1	Yes	140	(90.9)	45	(95.7)	33	(82.5)	62	(92.5)	0.083	
(N=154)	No	14	(9.1)	2	(4.3)	7	(17.5)	5	(7.5)		
Symptom stability	Yes	116	(76.3)	40	(85.1)	30	(75.0)	46	(70.8)	0.207	
(N=152)	No	36	(23.7)	7	(14.9)	10	(25.0)	19	(29.2)		
Content of treatment	Yes	96	(61.9)	33	(68.8)	21	(52.5)	42	(62.7)	0.291	
(N=155)	No	59	(38.1)	15	(31.3)	19	(47.5)	25	(37.3)		
Sitting position holdable	Yes	148	(94.9)	46	(95.8)	38	(92.7)	64	(95.5)	0.758	
(N=156)	No	8	(5.1)	2	(4.2)	3	(7.3)	3	(4.5)		
Standing position holdable※1	Yes	147	(94.2)	47	(97.9)	37	(90.2)	63	(94.0)	0.301	
(N=156)	No	9	(5.8)	1	(2.1)	4	(9.8)	4	(6.0)		
Wheelchair use※1	Yes	146	(93.6)	47	(97.9)	37	(90.2)	62	(92.5)	0.303	
(N=156)	No	10	(6.4)	1	(2.1)	4	(9.8)	5	(7.5)		
Independent wheelchair	Yes	131	(84.0)	41	(85.4)	32	(78.0)	58	(86.6)	0.477	
(N=156)	No	25	(16.0)	7	(14.6)	9	(22.0)	9	(13.4)		
Walking assitance ※1	Yes	140	(89.7)	45	(93.8)	32	(78.0)	63	(94.0)	0.016	*
(N=156)	No	16	(10.3)	3	(6.3)	9	(22.0)	4	(6.0)		
Independent walking	Yes	135	(86.5)	44	(91.7)	30	(73.2)	61	(91.0)	0.014	*
(N=156)	No	21	(13.5)	4	(8.3)	11	(26.8)	6	(9.1)		
Dressing	Yes	139	(89.7)	44	(91.7)	29	(72.5)	66	(98.5)	<0.001	* *
(N=155)	No	16	(10.3)	4	(8.3)	11	(27.5)	1	(1.5)		
Nurse assistance by one person	Yes	78	(51.7)	33	(73.3)	17	(42.5)	28	(42.4)	0.002	* *
(N=151)	No	73	(48.3)	12	(26.7)	23	(57.5)	38	(57.6)		
Esperience-based senses	Yes	37	(24.3)	13	(28.3)	8	(20.0)	16	(24.2)	0.673	
(N=152)	No	115	(75.7)	33	(71.7)	32	(80.0)	50	(75.8)		
Desires	Yes	140	(90.9)	41	(87.2)	35	(87.5)	64	(95.5)	0.217	
(N=154)	No	14	(9.1)	6	(12.8)	5	(12.5)	3	(4.5)		
Respect of their dignity	Yes	104	(68.0)	30	(63.8)	28	(70.0)	46	(69.7)	0.765	
(N=153)	No	49	(32.0)	17	(36.2)	12	(30.0)	20	(30.3)		
Discharge destination	Yes	111	(74.0)	41	(87.2)	16	(42.1)	54	(83.1)	<0.001	* *
(N=150)	No	39	(26.0)	6	(12.8)	22	(57.9)	11	(16.9)		

※1Fisher's exact test, Other χ^2 test*: P<0.05、**: P<0.01

4. Relationship between the type of service and important factors for independent excretion from the perspective of care planners

Table 4 represents the relationship between the type of service and important factors for independent excretion from the perspective of care planners. The care planners' opinions regarding the <content of treatment>, <independent wheelchair manipulation>, <independent walking>, <being cared for by a single nurse> (p<0.05 in all cases), <dressing>, and <discharge destination> (p<0.01 in all cases) significantly varied according to the type of service. For example, the rate of regarding the <content of treatment> as important was markedly higher in long-term care than in welfare facilities (p<0.05). The rate for <dressing> was significantly higher in long-term care facilities and home care support offices compared with long-term welfare facilities (P<0.01). The rate for <being cared for by a single nurse> was markedly higher in long-term care facilities compared with home care support offices (p<0.05), and that for <discharge destination> was significantly higher in long-term care facilities compared with long-term welfare facilities and home care support offices (P<0.01).

<Table 4> Relationship between the type of service and important factors for independent excretion from the perspective of care planners

		Type of service												
		① Long-term care facilities			② Long-term welfare facilities			③ Home care support offices				p value※2		
	item	n	Avarage value	Standard deviation	n	Avarage value	Standard deviation	n	Avarage value	Standard deviation	p value※1	①vs②	①vs③	②vs③
Necessary for excretion independence	The desire to defecate/uninate	47	4.8	0.5	43	4.7	0.7	68	4.7	0.8	0.420	0.614	0.843	1.000
	Incontinence frequency	47	4.2	0.9	43	4.2	0.9	68	4.1	1.0	0.709	1.000	1.000	1.000
	Bowel movements	48	4.4	1.0	42	4.3	0.9	68	4.4	0.9	0.940	1.000	1.000	1.000
	Purabative use	48	3.9	1.1	43	4.0	1.0	68	3.8	1.1	0.722	1.000	1.000	1.000
	Nutritional condition	47	3.9	0.9	42	3.9	1.0	68	4.1	1.0	0.496	1.000	0.830	1.000
	Eating behavior	47	3.6	1.0	43	3.5	1.0	68	3.6	1.0	0.742	1.000	1.000	1.000
	Activity level	48	4.4	0.8	43	4.2	0.8	68	4.5	0.7	0.092	0.249	1.000	0.121
	Dementia symptoms	48	4.1	0.9	43	3.7	1.3	68	4.2	1.0	0.202	0.599	1.000	0.254
	Symptom stability	48	4.3	0.9	42	3.9	1.0	68	4.2	0.8	0.263	0.356	1.000	0.715
	Content of treatment	47	4.2	1.0	43	3.7	0.9	68	3.8	1.1	0.014 *	0.012 *	0.118	0.950
	Sitting position holdable	48	4.7	0.7	42	4.5	0.9	67	4.5	0.7	0.062	0.248	0.060	1.000
	Standing position holdable	48	4.6	0.8	43	4.3	0.9	68	4.4	0.8	0.118	0.168	0.228	1.000
	Wheelchair use	47	4.0	1.1	43	3.6	1.1	68	4.0	1.0	0.099	0.208	1.000	0.152
	Independent wheelchair	48	4.1	1.0	43	3.6	1.2	68	4.1	0.9	0.042 *	0.117	1.000	0.060
	Walking assitance	47	3.9	1.2	43	3.5	1.3	67	4.0	1.0	0.091	0.252	1.000	0.113
	Independent walking	47	4.1	1.2	42	3.5	1.2	68	4.0	1.1	0.041 *	0.056	1.000	0.131
	Dressing	48	4.3	1.0	43	3.6	1.2	68	4.2	1.0	<0.001 **	0.002 **	1.000	0.005 **
	Nurse assistance by one person	47	3.9	1.0	42	3.4	1.2	68	3.3	1.2	0.015 *	0.091	0.017 *	1.000
	Esperience-based senses	47	3.3	1.0	42	3.2	0.9	68	3.1	1.0	0.861	1.000	1.000	1.000
	Desires	48	4.8	0.5	43	4.7	0.7	68	4.6	0.8	0.273	1.000	0.342	1.000
	Respect of their dignity	48	4.6	0.8	43	4.6	0.6	68	4.5	0.8	0.668	1.000	1.000	1.000
	Discharge destination	48	4.7	0.5	40	3.9	0.9	68	4.2	0.9	<0.001 **	<0.001 **	0.005 **	0.398

5methods : 1. Not think at all 2. Not think so much 3. Neither 4. Somewhat agree 5. Very likely (Calculate average value and standard deviation)

※1 Kruskal Wallis-test、※2 Mann-Whitney U-test (Bonferroni) *: P<0.05、**: P<0.01

Ⅴ. Discussion

The present study examined the status of care plans for independent excretion in long-term care insurance services through a nationwide survey. This section discusses such a status, dividing the study facilities/offices into 2 groups: facility services: long-term care/welfare facilities; and home services: home care support offices.

1. Status of care plans for independent excretion in facility services

In long-term care/welfare facilities compared with home care support offices, excretion care plans for facility users were created significantly more frequently. This may have been a result of measures to promote functional recovery care as a social trend, such as the addition of excretion support fees in 2018 and establishment of operational standards on diaper use, which have provided facilities with an incentive. The contents of excretion care plans listed in the free-description space aimed to achieve/maintain independent excretion (e.g., <gradually shifting from diaper to portable toilet use> and <participating in exercise programs for independent excretion>) or provide integrated care approaches (<considering excretion assistance methods>). Thus, the contents of excretion care plans markedly varied from those focusing on functional recovery to detailed care approaches.

The contents of information collected to create care plans for independent excretion also varied between long-term care/welfare facilities. For example, long-term care facilities examined <discharge destination> more frequently, while long-term welfare facilities confirmed <walking assistance>, <independent walking>, <dressing>, and <discharge destination> less frequently than the other group. A similar tendency was observed regarding important factors for independent excretion, as many care planners of long-term care facilities regarded <discharge destination> as important, but few of the long-term welfare facilities placed importance on <dressing>.

The Ministry of Health, Labour, and Welfare promotes support for the resumption of home life, specifying the basic principle of long-term care facilities as “helping facility users resume their home lives” (Ministry of Health, Labor and Welfare, 2017a). This may explain the higher rate of collecting information regarding <discharge destination> in long-term care facilities when creating care plans for independent excretion as a factor contributing to the resumption of home care.

In contrast, long-term welfare facilities are defined as facilities for older persons requiring care to lead their daily lives. When the Long-Term Care Insurance Act was revised in 2015, users of these facilities were basically limited to older persons with a care grade of 3 of higher. The mean care level in long-term welfare facilities was 3.91 in 2016 (Ministry of Health, Labor and Welfare, 2017b), suggesting the progression of care dependency among their users. Based on this, the necessity of approaches to improve <independent walking>, <dressing>, or other ADL abilities, which tend to be favorably maintained, may have been less noted in long-term welfare facilities, resulting in a lower rate of collecting information regarding these contents for care plans. In fact, their care planners described: <Most residents of nursing homes for the elderly begin to use diapers on admission. Care plans for them rarely aim at the achievement/maintenance of independence> and <Almost all residents are using diapers and bedridden. They are far from being independent>, revealing their difficulty in creating care plans for independent excretion despite the progression of care dependency among facility users. Compared with most other ADL, excretion may markedly affect one's dignity, and his/her desire to maintain the ability to excrete independently is strong. Takeuchi (Takeuchi & Fujio, 2011) noted: "Their dignity remains impaired if caring for them is changing their diapers. Caregiving is a theory". Even when care dependency is marked, optimal interventional approaches should be provided toward the achievement/maintenance of independent excretion. In this respect, it may be necessary to enhance care planners' awareness of functional recovery care and provide them with related education.

2. Status of care plans for independent excretion in home services

The rate of creating excretion care plans was significantly lower in home care support offices compared with long-term care/welfare facilities. Among the 4 items listed on the comprehensive assessment sheet used for workshops to improve caregiving skills, <the frequency of urinary incontinence>, <bowel movements>, and <purgative use> were examined markedly less frequently in home care support offices when collecting information to create care plans for independent excretion.

As for excretion care as part of home care services, Nishii et al. (Nisihi, Funatani, Kumazawa et al. , 2008)noted that little attention is paid to excretion problems, and care dependency may be progressive in individuals with such problems, unless they are appropriately assessed and treated. Assessment for independent excretion was also insufficient in the present study. Furthermore, the care planners mentioned excretion care-related burdens on family caregivers, such as "Functional recovery care increases family burden. Therefore, in some cases, we use diapers even when independent excretion may be achieved" and "More effective care plans tend to be more burdensome for caregivers", as a challenge of care plans for independent excretion. Facility users' financial problems were another barrier to care plans for independent excretion, as some care planners noted: "It is difficult to use insurance services for sanitary disposal due to a low pension income". Such a situation of excretion care as part of home care services may be associated with complicating social factors, including caregivers and financial conditions. With the facility-to-home transition of long-term care, independent excretion is indispensable for the continuation of home life. It also enables older persons to continue to live in their communities with a sense of security. Therefore, intervention for independent excretion may also be essential in home care.

In the present study, the rates of being qualified as both a senior CM and certified CM and those only qualified as a senior CM were significantly higher in home care support offices, suggesting that more skilled CMs are in charge of care plans in these offices. However, they did not create care plans for independent excretion due to the following complicating circumstances: Senior CM training is currently being provided to develop human resources who will lead other CMs, and nurture those who will promote community development toward the establishment of community-based integrated care systems. It is a pity that care management for independent excretion is not included in the purposes of this training. Independent excretion care cannot be completed by a single type of profession or institution, but it requires multi-professional team approaches and advanced care management skills. Therefore, it may be necessary to incorporate care management for independent excretion into programs to educate senior CMs in the future.

In summary, the present study revealed significant differences in the status of care plans for independent excretion and contents of information collected for such planning among different types of long-term care insurance service. However, with the response rate limited to 10.7%, the results cannot be fully generalized. As a future perspective, we will analyze the care planners' free descriptions to further clarify the challenges of care plans for independent excretion in Japan's long-term care insurance services. It may also be necessary to identify challenges of multi-professional and -institutional collaboration, in order to continuously provide independent excretion care, regardless of the site of long-term care.

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ORIGINAL ARTICLE

Investigation of the Current State of Special Needs Education in High School in Japan;

Investigation in Yamaguchi Prefecture

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ABSTRACT

The aim of this study is to reveal the present condition of special needs education in high schools in Japan. A total of 58 high schools in Yamaguchi Prefecture in Japan participated in this study. The results show that students with some difficulty in school life were enrolled in most high schools, and students diagnosed with mental illness and students needing support for foreign nationality were enrolled in some high schools. Furthermore, the following four characteristics of the current status of special support for students with special educational needs in high school in Japan were found. First, teachers in high school tend not to assess the characteristics and difficulties of students with objective indicators. Second, many high schools have not had sufficient cooperation with organizations outside the school. Third, many high schools did not fully consider accommodation for students with special educational needs in entrance and regular examinations and evaluations. Fourth, many high schools did not perform special-needs-understanding education for other students.

＜Key-words＞
students with special educational needs, special needs education, high school

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I. Introduction

The Salamanca World Conference on Special Needs Education endorsed the idea of inclusive education (UNESCO, 1994). Inclusive education is an education policy and have been promoted in major developed countries. Inclusive education is defined as equal and comprehensive education that takes place in a common place, regardless of disabilities (Han, Kohara, Yano, & Aoki, 2013). The transition from segregated education to inclusive education have been in progress in many countries, such as Denmark and Italy (Han et al., 2013). In such a global trend, inclusive education have been promoted in Japan as special education since the implementation of special education in 2007.

Recently, the important challenge of diffusing special education in Japanese high school has arisen since the necessity of special education was mentioned by Central Council for Education in Japan (Tabe, 2011). In this background, there are two circumstances surrounding high school students with developmental disabilities in Japan. First, the number of high school students with developmental disabilities has been increasing (Uchino & Takahashi, 2006). Uchino and Takahashi (2006) investigated the present condition of special needs education for high school students with mild developmental disabilities in Kanagawa Prefecture in Japan. Results showed that students with mild developmental disabilities were enrolled at 26.3% of the high schools and the number of students with mild developmental disabilities has been increasing each year. Therefore, special needs education in high school in Japan will be required in the future. Second, high school students with developmental disabilities have various difficulties in their daily school life (Hendricks & Wehman, 2009; Kent, Pelham, Molina, Sibley, Waschbusch, Yu, Gnagy, Biswas, Babinski, & Karch, 2011). Kent et al. (2011) found that students with attention deficit hyperactivity disorder (ADHD) had more difficulty with academic achievement than students without ADHD. Hendricks and Wehman (2009) pointed out that students with autism spectrum disorders had difficulty with social interaction and needed to improve their social skills in preparation for successfully transitioning. Therefore, special needs education in high schools in Japan would need to deal with various difficulties in students with developmental disabilities. These trends suggest further enhancements of special needs education in high school in Japan.

In light of these circumstances, Tabe (2011) pointed out that the special educational support system of high schools in Japan has gradually been implemented. However, Tabe (2011) revealed some problems with the support system. First, support for the transition from junior high schools to high schools for students with special educational needs could not be implemented. In Japan, many parents of students with special educational needs and many junior high schools of these students would not convey information about their disabilities and special educational needs to avoid disadvantaging them in enrolling in high school because students had to pass an entrance examination for enroll in high school. Therefore, the transition might be one of the challenges facing special needs education in high schools in Japan. Second, special support for students with special educational needs have had insufficient experience in high schools in Japan. As special support for students with special educational needs in high school, Uchino and Takahashi (2006) pointed out supplementary lessons, special teaching materials, and structuring needs for the classroom. However, high schools in Japan were not able to provide these special supports for students with special educational needs. Therefore, these practices were also challenges. Third, the human resources and the facilities needed in special needs education were insufficient. In Japan, the preliminary conditions of human resources and facilities have varied by high school, so the concept of special needs education has penetrated them only recently. Tabe (2011) insisted on the importance of solving these problems to promote special needs education in high school in Japan.

Shimonakamura and Furuta (2014) also found three major characteristics and problems in special needs education in high school in Japan in a review of the literature on practical reports of special needs education. First, this review showed that most high schools engaged in similar methods and content of special needs education, while other schools developed original methods and content. This suggested that the current state of special needs education in high schools is different in each high school in Japan. Second, it revealed that high school teachers had received knowledge of special needs education through special needs education/training including seminars, but most of them had only limited experience teaching students with disabilities. This suggested that there was a need to increase the opportunities for education/training about special needs education or engaging with students with special educational needs. Third, it revealed that some students with disabilities recognized their needs, enabling teachers to teach effectively by keeping these students' needs in mind. This suggested that there was a need to improve skills to support students with special educational needs in high school teachers in Japan. Thus, this review revealed that many high schools tried to practice special needs education and tried to ensure the quality of the special needs education of teachers in special needs education in high school. However, this review could not examine the current state of special needs education in high schools in Japan quantitatively, such as how many students with special educational needs were enrolled or how much a particular support has been implemented. Therefore, we consider it important to examine current state of special needs education in high schools in Japan quantitatively.

Based on these reviews, Seki, Himeno, Adachi, and Kondo (2017) investigated the current state of special needs education in high schools in Japan quantitatively, by such measures as the broad outline of high schools (departments, scale, and course graduates), the enrollment situation of students with special educational needs, and the support conditions for students with special educational needs (assessment of difficulties, support system in high schools, support in learning, arrangements in regular examinations and entrance examinations, cooperation with junior high schools, and cooperation with medical facilities and welfare institutions). The results showed that many students with special educational needs are enrolled in high schools with very few students and in high schools most of whose graduates received employment. The results also showed that high schools that had a large number of special needs students tend to have implement more varied supports for them than did high schools with only a small number of them. These results suggest that special needs education and special support for students with special educational needs in high schools depend on the characteristics of high schools and the numbers of students with special educational needs. This study is very useful for our general understanding of the situation of special needs education in high school in Japan.

However, their review had two problems. First, they did not examine the current state of truants or students who refuse to go to school, students needing support for foreign nationality, and students diagnosed with mental illness. For example, foreign students have difficulty in learning using Japanese and in communicating with other students, and students with mental illness feel pressured in school life. Therefore, these students need special support to have an enjoyable and satisfying school life. Second, the review did not examine the special support exhaustively. It examined the implementation status of special support, such as assessments of students with special support, support systems in high schools, support of learning for students with special educational needs, special support in regular tests and evaluations, exchange of information about students with special educational needs with junior high schools, and special support in entrance examinations. However, it is also necessary to exchange information about these students with their parents, medical agencies, and social service agencies, provide appropriate career guidance based on their assessments, and promote special-needs-understanding education for other students. Therefore, these issues of special support and special needs education need to be examined.

Based on these two points, the aim of this study is to examine the actual conditions of special needs education in high schools in Japan. In particular, we consider the following two points. First, we examine the current status of the numbers of students with special educational needs in each high school, including students who refuse to go to school, students needing support for foreign nationality, and students diagnosed with mental illness. Second, we examine the current status of the special educational support in each high school, including exchanges of information about these students with their parents, medical agencies, and social service agencies, provisions of appropriate career guidance based on their assessment, and promotion of special needs understanding education for other students.

II. Method

1. Participant Schools and Procedure

A total of 58 high schools in Yamaguchi prefecture in Japan participated in this study. The questionnaire was sent to each high school by mail in March 2018. Teachers belonging to each of high schools who understood the respective conditions of special needs education completed and returned the questionnaire by mail.

On the first page of the questionnaire, it was written that all the participants' personal information would be strictly protected, and that their decision whether or not to participate would not be disadvantaged. It was also written that participation was voluntary and that they could quit at any time.

2. Questionnaire

To measure the current status of special needs education in high schools in Japan, we created an original questionnaire by consultation between the authors. The items in the questionnaire in this study were created by the authors with reference to the study of Seki et al. (2017). The reason why the items of Seki et al. (2017) were included is that these items would be able to comprehensively grasp the condition of implementation of special support necessary for special needs education at high school. This questionnaire consisted of two sections. The first section asked the enrollment status of students with special educational needs. High school teachers participating in this investigation were asked to answer "not enrolled," "1–4 students are enrolled," "5–9 students are enrolled," "10–14 students are enrolled," "15–19 students are enrolled," and "over 20 students are enrolled" regarding the enrollment status of these students. We investigated the current status of the number of "students with some difficulty in school life (without diagnosis)," "students who have an individualized educational plan," "students diagnosed with developmental disabilities," "students diagnosed with mental illness," "students needing support for foreign nationality," "truants or students who refuse to go to school," "students who have difficulty with social interaction," "students with behavioral problems," and "students diagnosed with physical disabilities" as students with special educational needs. The second section asked the implementation status of special needs education and special support in high schools. This section has 46 items in eight sub-parts: "Assessments of students with special support," "Support systems in high schools," "Support of learning for students with special educational needs," "Special support in entrance and regular tests and evaluation," "Exchange of information about students with special educational needs with junior high schools and parents," "Exchange of information about students with special educational needs with medical agencies or social service agencies," "Appropriate career guidance based on their assessment," and "Special-needs-understanding education for other students." High school teachers participating in this study were asked to rate the current status of the implementation of measures for each item in their high school. All items were rated on a Likert scale from 1 (not at all) to 4 (very much).

3. Data Analysis

To examine the current status of the numbers of students with special educational needs and the current status of the special educational support in each high school, we calculated the frequency distribution for each of the items. Data analysis was performed with IBM SPSS Statistics 23.0.

III. Results

1. Profile of the Teachers Who Answered the Questionnaire

The participants who answered the questionnaire were 58 high school teachers (32 female and 25 male; 1 person did not answer). The mean age of these teachers was 48.59 years (*SD* = 11.56), ranging from 23 to 65.

2. Current Status of the Number of Students with Special Educational Needs

Table 1 shows data on the number of high schools whose students need special support. It showed that students having difficulty in school life had enrolled in most of the high schools (96.4%). It also showed that students with individualized educational plans (81%), those diagnosed with developmental disabilities (79.2%), truants or students who refuse to go to school (82.7%), those with difficulty in social interaction (91%), and those with behavioral problems (81%) have enrolled in most of the high schools. In particular, it also showed that more than 20 students with difficulty in social interaction (7.1%) or with behavioral problems (3.4%) are enrolled in some of the high schools. Although there were few such instances, it showed that students diagnosed with mental illness (24.1%) and students needing support for foreign nationality (19.3%) were enrolled in some of the high schools.

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<Table 1> Profile of students with special educational needs in responding high schools

Number of students	0	1–4	5–9	10–14	15–19	over 20
students with some difficulty in school life (without diagnosis)	2 (3.5)	24 (42.1)	15 (26.3)	6 (10.5)	4 (7.0)	6 (10.5)
students who have individualized educational plans	11 (19.0)	34 (58.6)	7 (12.1)	5 (8.6)	0 (0)	1 (1.7)
students diagnosed with developmental disabilities	12 (20.7)	30 (51.7)	13 (22.4)	2 (3.4)	0 (0)	1 (1.7)
students diagnosed with mental illness	43 (74.1)	13 (22.4)	1 (1.7)	0 (0)	0 (0)	0 (0)
students needing support for foreign nationality	46 (80.7)	11 (19.3)	0 (0)	0 (0)	0 (0)	0 (0)
truants or students who refuse to go to school	10 (17.2)	37 (63.8)	6 (10.3)	3 (5.2)	1 (1.7)	1 (1.7)
students with difficulty in social interaction	5 (8.9)	31 (55.4)	5 (8.9)	7 (12.5)	4 (7.1)	4 (7.1)
students with behavioral problems	11 (19.0)	32 (55.2)	7 (12.1)	4 (6.9)	2 (3.4)	2 (3.4)
students diagnosed with physical disabilities	25 (43.9)	31 (54.4)	1 (1.1)	0 (0)	0 (0)	0 (0)

Note: Numbers in parentheses are percentages.

2. Current Status of the Special Support for Students with Special Educational Needs

Table 2 shows the current status of the assessment of students with special educational needs in each high school. It was found that many high schools frequently assess the characteristics and difficulties of students by observing their learning and living conditions (56.9%). It was also found that many high schools frequently share information about the characteristics of students between teachers (44.8%). On the other hand, it was also found that the numbers of high schools that frequently assess the characteristics and difficulties of students using an intelligence scale, developmental scale (5.2%), or checklist for behavioral evaluation (3.4%) were small.

<Table 2> The current status of the assessment of students with special educational needs in respondent high schools

Items about student assessment	Not at all	A little	Quite a lot	Very much
We assess the characteristics and difficulties of students by observing their learning and living conditions.	0 (0)	1 (1.7)	24 (41.4)	33 (56.9)
We share information about the characteristics of students between teachers.	1 (1.7)	4 (6.9)	27 (46.6)	26 (44.8)
We obtain information about students from their parents.	3 (5.2)	14 (24.1)	25 (43.1)	16 (27.6)
We assess the characteristics of students using an intelligence scale or developmental scale like WISC-IV.	27 (46.6)	16 (27.6)	12 (20.7)	3 (5.2)
We assess the characteristics of students using a checklist for behavioral evaluation.	28 (48.3)	15 (25.9)	13 (22.4)	2 (3.4)

Note: Numbers in parentheses are percentages.

Table 3 shows the current status of the support systems in high schools. It was found that some high schools frequently hold case meetings to understand the characteristics of students with special educational needs and examine ways to support them (15.5%). It was also found that teachers frequently cooperate with other teachers by accepting other duties as needed in some high schools (17.2%). However, there were not so many high schools that had patrol consultations of an expert team, such as a region coordinator (1.7%), or that hold workshops about special needs education (3.4%).

<Table 3> The current status of the support systems for special needs education in high schools

Items about the school support system	Not at all	A little	Quite a lot	Very much
We hold case meetings to understanding the characteristics of students with special educational needs and examining ways to support them.	4 (6.9)	9 (15.5)	36 (62.1)	9 (15.5)
We cooperate with teachers by allocating other duties as needed.	3 (5.2)	5 (8.6)	40 (69.0)	10 (17.2)
Cooperation between items about the support system with outside	0 per year	1 per year	2–5 per year	over 6 per year
We utilize patrol consultation of an expert team, such as region coordinator.	13 (22.4)	30 (51.7)	14 (24.1)	1 (1.7)
We hold workshops about special needs education.	6 (10.3)	31 (53.4)	21 (36.2)	2 (3.4)

Note: Numbers in parentheses are percentages.

Table 4 shows the current status of the support of learning for students with special educational needs. It was found that some high schools frequently implement reasonable accommodation for students with special educational needs (19.6%), and implement life skill support for students with difficulty in their daily life (19.6%). On the other hand, it was found that many high schools did not use audio-visual materials in teaching students with special educational needs (47.4 %).

<Table 4> The current status of the support of learning for students with special educational needs

Items about special support	Not at all	A little	Quite a lot	Very much
We implement individualized learning support after school.	16 (27.6)	4 (6.9)	33 (56.9)	4 (6.9)
We implement co-teaching for students with special educational needs.	30 (52.6)	13 (22.8)	10 (17.5)	4 (7.0)
We use audio-visual materials in teaching students with special educational needs.	27 (47.4)	10 (17.5)	17 (29.8)	3 (5.3)
We implement reasonable accommodation for students with special educational needs.	5 (8.8)	10 (17.5)	31 (54.4)	11 (19.3)
We implement special support for students with special educational needs based on their strength.	6 (10.5)	12 (21.1)	34 (59.6)	5 (8.8)
We teach lessons following a universal design for students with special educational needs.	9 (15.8)	12 (21.1)	31 (54.4)	5 (8.8)
We implement social skill support for students with difficulty in social interaction.	9 (16.1)	11 (19.6)	28 (50.0)	8 (14.3)
We implement life skill support for students with difficulty in their daily life.	10 (17.9)	12 (21.4)	23 (41.1)	11 (19.6)

Note: Numbers in parentheses are percentages.

Table 5 shows the current status of special support in entrance and regular tests and evaluations. It was found that most high schools did not extend the period of entrance and regular tests beyond the general period for students with special educational needs (98.2%), or read the contents of examination questions aloud for students with special educational needs (98.2%). It was also found that many high schools did not make arrangements for students with special educational needs to take examinations in another room (68.4%), or change the size of the answer column of examination questions for students with special educational needs (66.7%).

<Table 5> The current status of special support in entrance and regular examination and evaluation

Items about special support	Not at all	A little	Quite a lot	Very much
We extend the set period of entrance and regular test time beyond the general period for students with special educational needs.	56 (98.2)	0 (0)	0 (0)	1 (1.8)
We allow a student with special educational needs to take an examination in a separate room.	39 (68.4)	5 (8.8)	9 (15.8)	4 (7.0)
We change the size of the answer column of examination questions for students with special educational needs.	38 (66.7)	7 (12.3)	7 (12.3)	5 (8.6)
We read the contents of examination questions aloud for students with special educational needs.	56 (98.2)	0 (0)	0 (0)	1 (1.8)

Note: Numbers in parentheses are percentages.

Table 6 shows the current status of the exchange of information about students with special educational needs with junior high schools and parents. It was found that many

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high schools frequently have interviews with the junior high school teachers of students with special educational needs in the period between the passing announcement and enrollment in high school (42.1%). It was also found that some high schools frequently have an interview with the teachers of the student with special educational needs before the entrance examination for high school (12.3%), after high school entrance (12.1%), and when they notice their maladaptive behavior (10.5%). On the other hand, it was found that most high schools did not have interviews with the parents of students with special educational needs before the entrance examination of the high school (98.2%) or when they notice their maladaptive behavior (98.2%). In addition, many high schools did not have interviews with the parents in the period between passing announcement and enrollment in high school (68.4%) or after high school entrance (66.7%).

<Table 6> The current status of the exchange of information about students with special educational needs with junior high schools and parents

Items about exchange of information	Not at all	A little	Quite a lot	Very much
We have interviews with the parents of students with special educational needs before the entrance examination for high school.	56 (98.2)	0 (0)	0 (0)	1 (1.8)
We have interviews with the parents of students with special educational needs in the interval between the passing announcement and enrollment in high school.	39 (68.4)	5 (8.8)	9 (15.8)	4 (7.0)
We have an interview with the parents of the student with special educational needs after high school entrance to school.	38 (66.7)	7 (12.3)	7 (12.3)	5 (8.6)
We have an interview with the parents of students with special educational needs when we notice their maladaptive behavior.	56 (98.2)	0 (0)	0 (0)	1 (1.8)
We have an interview with the teachers of students with special educational needs before the entrance examination of high school.	34 (59.6)	8 (14.0)	8 (14.0)	7 (12.3)
We have an interview with the junior high school teachers of students with special educational needs in the period between the passing announcement and enrollment in high school.	10 (17.5)	2 (3.5)	21 (36.8)	24 (42.1)
We have an interview with the junior high school teachers of students with special educational needs after high school entrance.	17 (29.3)	6 (10.3)	27 (46.6)	7 (12.1)
We have an interview with the junior high school teachers of students with special educational needs when we notice their maladaptive behavior	15 (26.3)	16 (28.1)	20 (35.1)	6 (10.5)

Note: Numbers in parentheses are percentages.

Table 7 shows the current status of the exchange of information about students with special educational needs with medical agencies or social service agencies. It was found that many high schools frequently carry out consultations between students with special educational needs and the school counsellor (47.4%). However, it was also found that many schools did not cooperate with special educational schools (35.1%), medical agencies (66.7%), support centers for individuals with developmental disabilities (66.7%), welfare facilities such as day services after school (78.9%), or consultation facilities, such as employment support centers for individuals with disabilities (70.2%). In particular, it was found that most high schools did not cooperate with child consultation centers (98.2%).

<Table 7> The current status of the exchange of information about students with special educational needs with medical agencies or social service agencies

the items about special support	Not at all	A little	Quite a lot	Very much
We carry out consultations between students with special educational needs and the school counsellor.	7 (12.3)	1 (1.8)	22 (38.6)	27 (47.4)
We cooperate with special educational schools.	20 (35.1)	15 (26.3)	18 (31.6)	4 (7.0)
We cooperate with medical agencies.	38 (66.7)	7 (12.3)	7 (12.3)	5 (8.6)
We cooperate with child consultation centers.	56 (98.2)	0 (0)	0 (0)	1 (1.8)
We cooperate with support centers for individuals with developmental disabilities.	38 (66.7)	11 (19.3)	7 (12.3)	1 (1.8)
We cooperate with welfare facilities, such as day services after school.	45 (78.9)	8 (14.0)	3 (5.3)	1 (1.8)
We cooperate with consultation facilities, such as employment support centers for individuals with disabilities.	40 (70.2)	8 (14.0)	7 (12.3)	2 (3.5)

Note: Numbers in parentheses are percentages.

Table 8 shows the current status of appropriate career guidance based on their assessment. It was found that many high schools were looking for workplaces suited to the characteristics of students with special educational needs (35.7%) and institutions at the next stage of education suited to the characteristics of students with special educational needs (38.6%), deciding courses based on the consent of students with special educational needs (73.7%) and the consent of parents of students with special educational needs (66.7%), and courses based on the consensus of students with special educational needs and the people around them (66.7%), as well as deepening the self-understanding of students with special educational needs in career guidance (49.1%) frequently. On the other hand, it was also found that the number of schools implementing individual carrier support for students with special educational needs (22.8%) and those that do not (24.6%) showed little difference.

<Table 8> The current status of appropriate career guidance based on their assessment

Items about special support	Not at all	A little	Quite a lot	Very much
We implement individual carrier support for students with special educational needs.	14 (24.6)	12 (21.1)	18 (31.6)	13 (22.8)
We are looking for workplaces suited to the characteristics of students with special educational needs.	14 (25.0)	5 (8.9)	17 (30.4)	20 (35.7)
We are looking for institutions at the next stage of education suited to the characteristics of students with special educational needs.	9 (15.8)	7 (12.3)	19 (33.3)	22 (38.6)
We decide courses based on the consent of students with special educational needs	0 (0)	1 (1.8)	14 (24.6)	42 (73.7)
We decide courses based on the consent of the parents of students with special educational needs.	0 (0)	1 (1.8)	18 (31.6)	38 (66.7)
We decide courses based on the consensus of students with special educational needs and the people around them.	0 (0)	4 (7.0)	15 (26.3)	38 (66.7)
We deepen the self-understanding of students with special educational needs in career guidance.	1 (1.8)	4 (7.0)	24 (42.1)	28 (49.1)

Note: Numbers in parentheses are percentages.

Table 9 shows the current status of special needs understanding education for other students. It was found that most high schools did not conduct education about disabilities and the handicapped to the students around students with special educational needs (8.8%), invite outside lecturers to perform special needs understanding education (3.5%), hold instructional activities or classes that feature the theme of social welfare (7.0%), or hold interchanges with individuals with disabilities in special schools or welfare facilities (0%) frequently. However, it was also found that some high schools conduct education about disabilities and the handicapped to the students around students with special educational needs (38.6%), invite outside lecturers to perform special needs understanding education (30.4%), hold instructional activities or classes that feature the theme of social welfare (45.6%), and hold interchanges with individuals with disabilities in special schools or welfare facilities (24.6%) to a certain extent.

<Table 9> The current status of special needs understanding education for other students

Items about special support	Not at all	A little	Quite a lot	Very much
We conduct education about disabilities and the handicapped to the students around students with special educational needs.	11 (19.3)	19 (33.3)	22 (38.6)	5 (8.8)
We invite outside lecturers to perform special needs understanding education.	25 (43.1)	16 (8.9)	14 (30.4)	2 (3.5)
We hold instructional activities or classes that feature the theme of social welfare.	15 (26.3)	12 (21.1)	26 (45.6)	4 (7.0)
We hold interchanges with individuals with disabilities in special schools or welfare facilities.	34 (59.6)	9 (15.8)	14 (24.6)	0 (0)

Note: Numbers in parentheses are percentages.

IV. Discussion and Conclusion

In this study, we examined the present condition of special needs education in high schools in Japan. In particular, we examined the current status of the numbers of students with special educational needs in each high schools and the current status of the special educational support in each high schools. We describe and discuss these results in detail below.

1. Current Status of the Number of Students with Special Educational Needs

Regarding the current status of the number of students with special educational needs in Japanese high schools in this research, we found the following two features. First, the results of this study show that students with some difficulty in school life entered most high schools. In particular, it showed that students who have individualized educational plans, those diagnosed with developmental disabilities, truants or students who refuse to go to school, those with difficulty in social interaction, and those with behavioral problems are enrolled in most high schools. These results are similar to those of Seki et al. (2017). In other words, students with special educational needs are enrolled in most high schools in Japan, which provide special support or special accommodation for these students. In addition, our results also show that the number of high schools where students with developmental disabilities are enrolled has increased greatly over the figures found by Uchino and Takahashi (2006) about 10 years ago. This result suggests that inclusive education in high school in Japan has been changing. Inclusive educational systems have become a central global issue in education measures since “special needs education” was positioned in the framework of “Education for All” in the Salamanca Statement on Principles, Policy, and Practice in Special Needs Education (Han et al., 2013; Han, Yano, Kohara, & Okuzumi, 2015). Han et al. (2013) pointed out that the environment for realizing inclusive education has not been sufficiently developed while the philosophy of inclusive education is slowly penetrating Japanese society. In this regard, many high school students with special educational needs or students diagnosed with developmental disabilities were probably able to enter ordinary high schools because the philosophy of inclusive education has spread (Seki et al., 2017). However, penetration of the philosophy of inclusive education does not mean that special support for the students with special educational needs has been sufficiently implemented or is adequate, as Han et al. (2013) pointed out. Therefore, as will be described below, it is important to prepare a special educational support system for ordinary high schools. In particular, it is important to provide opportunities to improve students’ social skill and appropriate classroom environment for students with behavioral problems in high school because it was also shown that more than 20 students with difficulty in social interaction or with behavioral problems have been enrolled in some high schools. Second, this study showed that students diagnosed with mental illness and students needing support for foreign nationality were enrolled in some high schools. Many studies have pointed out that the number of individuals with psychiatric disorders or with mental illness and immigrants or individuals whose native language is not Japanese have been increasing in Japan (Ishimaru, 2017; Uehara, 2005, 2009). For this reason, students diagnosed with mental illness and students needing support for foreign nationality have enrolled in some high schools, suggesting the need for support for students diagnosed with mental illness and students needing support for foreign nationality.

2. Current Status of the Special Support for Students with Special Educational Needs

As characteristics of the current status of the special support for students with special educational needs studied in this research, the following four broad characteristics have been found.

First, teachers in high school tend not to assess the characteristics and difficulties of students with objective indicators, such as intelligence scales, developmental scales, or checklists for behavioral evaluation, but assess these characteristics and difficulties by observing students' learning and living conditions. This tendency is likely due to a lack of instruments with objective indicators to assess psychological and social characteristics of adolescents in Japan. Currently, various scales for assessing the psychological and social characteristics of infants and children, including the Wechsler Intelligent Scale for Children-Fourth Edition (WISC-IV) and Tanaka-Binet Intelligence Scale V, are frequently used. Moreover, many checklists that can assess the psychological and social characteristics of infants and children more easily have been developed and used in the field of special needs education (Hongo, Iijima, Takahashi, Koizumi, Hirakawa, & Kamiya, 2015; Miyazaki, Nishimura, Murakawa, Mori, & Hashimoto, 2014; Ozaki, Kobayashi, Mizuuchi, & Abe, 2013). On the other hand, attempts to develop a checklist to assess psychological and social characteristics in adolescents have been proceeding apace in recent years (Funabiki & Murai, 2017), but these checklists have not sufficiently penetrated the educational system of high schools. Therefore, it is important to promote to use the development of scales and checklists for assessing psychological and social characteristics in adolescence and disseminate them to high school teachers. In addition, it is also important to develop these development of scales and checklists which is more easy to use.

Second, many high schools were trying to collaborate with faculty members in the school to support students with special educational needs. However, these high schools have not been able to obtain sufficient cooperation with organizations outside the school to support these students. This result showed that many high schools frequently hold case meetings to understand the characteristics of students with special educational needs and examine ways to support them. On the other hand, it also showed that many high schools had not utilized patrol consultations with the expert team, such as region coordinators, or held workshops about special needs education. Moreover, we found that many schools did not cooperate with special educational schools, medical agencies, support centers for individuals with developmental disabilities, welfare facilities such as day services after school, or consultation facilities such as employment support centers for individuals with disabilities. As the background of these results, it is likely that the consciousness of collaboration with organizations outside school is sparse in many high school teachers. In other words, many high school teachers tend to think that all special support for students with special educational needs must be done by themselves. Currently, some research has reported that teachers in Japan did not have the consciousness of collaboration with organizations outside school sufficiently (Yano & Yonemizu, 2016), and high school teachers in Japan did not have enough knowledge about organizations outside school (Himeno, Seki, Adachi, & Kondo, 2017). This suggests that the consciousness of collaboration with organizations outside school is sparse in high schools in Japan. Therefore, it is important for high school teachers in Japan to provide information about various institutions outside the school and to hold training on cooperation with organizations outside the school, such as medical institution or development support centers.

Third, many high schools did not fully consider accommodation for students with special educational needs in entrance and regular examination and evaluation, while they did provide a variety of support, including appropriate career guidance based on their assessments. In recent years, research on test accommodations for students with disabilities and special educational needs has been accumulating (Lovett & Leja, 2015; Sireci, Scarpati, & Li, 2005). Also, in Japan, the provision of reasonable accommodation is now obligatory in local public organizations. Nevertheless, this result suggests that it was difficult for high schools in Japan to implement a reasonable test accommodation. One of the reasons for the difficulty in implementing a reasonable test accommodation is probably that high school teachers assume that it is unfair for other students to implement reasonable accommodation in examination and evaluation. Some research pointed to the possibility that other students felt it was unfair to see a particular student with special educational needs receiving reasonable accommodation in examinations and evaluations or hearing about it from someone else (Kajiwara, Asakawa, Tanaka, & Fukui, 2012; Kanetsuki, 2017). Therefore, high school teachers could not implement reasonable accommodation in examinations and evaluations due to concerns about other students' feelings of unfairness. Based on this possibility, it is necessary to provide appropriate information about methods of reasonable accommodation in examinations and evaluations to high school teachers through holding workshops.

Fourth, many high schools did not hold special-needs-understanding education for other students. In Japan, many elementary schools and junior high schools perform special needs understanding education for other students, and studies of these practice have accumulated (Fujita, Oishi, Tsunoda, & Nagase, 2018; Kanamori, Imaeda, & Kusunoki, 2016; Nishidate, 2009). In addition, some colleges and universities hold special-needs-understanding education for other students, and studies of these practice have also accumulated (Hondo, Kawaguchi, Wakamatsu, Hayashida, Mutaguchi, Kawai, & Chikurinji, 2017; Tsunoda, Oishi, Nagase, & Fujita, 2018). These studies showed that many children and students acquired knowledge of various disabilities and positive attitudes towards people with disabilities through lecture on various disabilities, disability simulations, and exchange activities with people with disabilities. However, the results of this study show that the characteristics of special-needs-understanding education in high schools are different from those in elementary schools, junior high schools, colleges, and universities. Therefore, it is considered necessary to promote special needs understanding education for other students in high schools in Japan through lecture on various disabilities, disability simulations, and exchange activities with people with disabilities.

To reiterate, there is sufficient special needs education and special support provision at all the high schools despite the enrollment of students with special educational needs. Therefore, it is necessary to provide substantial support for students with special educational needs at high school based on the findings of this research. In particular, it is necessary to introduce an assessment tool to high schools to delineate student characteristics, to ensure sufficient cooperation with organizations outside the school, to consider accommodations in entrance and regular examinations and evaluations, and to conduct special-needs-understanding education.

Limitations

The limitations of this study include the following two points. First, the high schools targeted in this study were limited to high schools in one prefecture. Educational policies in Japan are known to differ in each prefecture. Therefore, the results of this study cannot be generalized to high schools throughout Japan. Thus, it will be necessary to conduct similar surveys nationwide in future research. Second, the validity of the questionnaire used in this study has not been sufficiently ascertained, because we created this questionnaire independently for this study. Recently, other questionnaires, such as the Inclusive Education Assessment Indicator (IEAI), have been developed to evaluate the implementation of special education at high schools (Han et al., 2015). Based on this, it will be necessary to confirm the validity of the questionnaire used in this research by performing a correlation analysis of this questionnaire and IEAI in future research.

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ORIGINAL ARTICLE

Perception of Dementia by Different Professionals When Discharging

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ABSTRACT

In order to reduce the difficulty of communication between occupations in supporting dementia patients from discharge, we investigated the perception of dementia in the profession involved in the discharge of dementia patients. Interviews were conducted with 18 professionals including doctors, nurses, medical social workers, care managers, and visiting nurses. The data were analyzed using content analysis. The results indicated that the perceptions regarding patients with dementia, their families, and symptoms of dementia could be classified into eight categories consisting 19 subcategories, which included 79 codes; [hospitalized patients have dementia], [patients with dementia are increasing], [dementia gets worse by hospitalization], [symptoms different from dementia are diagnosed as dementia at hospitals], [family's perception is different], [lack of ability to provide care by family members], [discharge coordination is not provided to patients with dementia], and [differences in discharge because of having dementia]. In some subcategories, a code was extracted from different professionals, or, from a specific professional. The results suggested differences regarding the perception of patients with dementia and symptoms of dementia in different professionals.

＜Key-words＞
patients with dementia, discharge coordination, interprofessional collaboration, communication, perception of dementia

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I. Introduction

It is predicted that the number of people with dementia will gradually increase, and managing people with dementia is an international issue. In 2016, the Ministry of Health, Labour and Welfare (MHLW) published the "Comprehensive strategies to promote measures for managing dementia: developing friendly communities for elderly with dementia (New Orange Plan)". This plan proposed developing a circular system for providing appropriate treatment and rehabilitation to people showing Behavioral and Psychological Symptoms of Dementia (BPSD). The plan included the provision of appropriate services in suitable places for physical complications in medical institutions and care facilities, as well as after discharge.

Usually, people with dementia having different illnesses including cerebral infarction, pneumonia, fractures, and external injuries, heart failure, urinary tract infection, and hemiplegia, among others are hospitalized in general wards. For example, patients with dementia with Level II or higher levels of daily life independence account for approximately 20% of the patients in general hospital wards, and 60% or higher of the patients in long-term care hospital wards having a patient-to-nurse ratio of only 7:1 or 10:1 (MHLW, 2016). Therefore, many patients hospitalized in general wards also have dementia. These patients are discharged when treatment for the illness that caused hospitalization is completed, and they return to their homes or facilities. However, it is necessary to provide comprehensive and continuous home health and nursing care for such patients, especially after they return home. Therefore, it is important to develop a system of interprofessional collaboration among medical and welfare professionals to provide discharge coordination and appropriate services.

MHLW (2012) suggested that the following factors are necessary for patient discharge coordination; (1) treatment and support for stabilizing the medical conditions (medication treatment, psychiatric occupational therapy, among others.), (2) liaison and coordination with care managers for daily life support after discharge, and (3) support for family members and caregivers. However, Kinbara, Okada, and Shirasawa (2012) indicated there is role stress associated with collaboration between care managers and nurses working at elderly care facilities. Moreover, Harada and Yamane (2013) reported that it is difficult to share information among team members and collaborate among different professionals because of hesitation, among other reasons. Furthermore, Naruse and Uda (2018) indicated the following difficulties in interprofessional collaboration in home health care provision; (1) Communication difficulties with other professionals, including "lack of time for communicating," "hesitating to contact other professionals because they might be busy," "not being recognized by other professionals," and "lack of knowledge about utilizing local resources." (2) Difficulties in providing services, including "different perspectives and role expectations depending on the occupation" and "difficulties in sharing information about users." (3) Difficulties in functioning as a team, including the "lack of information about the abilities of others'," "difficulties in talking honestly," and "walls between different professionals." These difficulties are considered to be caused by the communication gap between different professionals. The communication gap is a gap in communication resulting from differences in understanding and values, as well as the lack of information (Matsumura, 2012). There are two types of communication gaps: the information gap resulting from the lack of information, and perception gap, resulting from differences in cultural backgrounds, the sense of values, experience, and problem consciousness, among others (Japan Contact Center Educational Testing Association, 2014). Differences in perceptions regarding patients and symptoms of dementia based on the occupation might cause a "perception gap" when discharging patients with dementia, leading to communication problems in interprofessional collaboration. Therefore, filling the gaps in perceptions among different professionals is expected to reduce communication difficulties, which is expected to lead to better coordination during discharge and the provision of support.

This study investigated the perceptions regarding patients with dementia, their families, and symptoms of dementia by different professionals involved in interprofessional collaboration. Moreover, the content of the communication gap and methods of reducing the gap was addressed in this study.

II. Objectives

The perceptions regarding patients with dementia, their families, and symptoms of dementia by different professionals involved in the discharge of patients with dementia was investigated in this study.

III. Methodology

1. Research design

Content analysis of semi-structured interviews.

2. Participants

Participants (N = 25) included 5 physicians, 5 discharge support nurses (nurses), 5 medical social workers (MSW), 5 care managers, and 5 visiting nurses with five or more years of experience. The participants were selected through snowball sampling.

3. Period of the study

December 2016 to March 2017

4. Content of the survey

Perceptions regarding patients with dementia and symptoms of dementia were investigated in professional workers at the point of discharging patients.

5. Data collection

Semi-structured interviews were conducted based on an interview guide.

Semi-structured interviews are easy to encourage free thinking and speech by study participants, and researchers can find issues to pursue during interviews and develop questions, by making effective use of interview guides. There is an advantage that it is easy to collect data according to the research purpose (Yatsu, 2000).

Requests for conducting the study was submitted to facility directors. Professionals that agreed to cooperate in this study were selected to take part in the study. Participants were interviewed for approximately 60 minutes after agreeing with the conditions of a written and oral explanation of the research. Each participant introduced the next participant until there were no more remaining people to introduce.

6. Analysis

Verbatim transcripts were developed based on IC recordings and analyzed for their content. Transcripts included only the data that participants consented for the analysis. Data was chunked while preserving meaning and then coded, divided into similar themes and then categorized according to the advice of the research director. Division of data was spread out over time to maintain the validity and reliability and repeated until categories were fixed.

7. Ethical considerations

A letter of request was distributed to facility directors and participants in the study stating the purpose of the study. The letter included a summary explaining that interview data would be used only for this study and would be destroyed five years after the conclusion of the study, or 3 years from the final research presentation. The letter also explained that results might be presented at symposiums or academic journals, but only in such a way that individual information would not be unidentifiable. The letter further explained that participation in the study was voluntary, that there would be no unfavorable consequences if participants did not respond. Moreover, it was explained that participants were free to withdraw from interviews at any time even after granting consent. None of the authors have any conflicts of interest associated with this research. This study has been approved by the International University of Health and Welfare IRB (Approval Number: 16-Ig-84).

IV. Results

1. Participants

Participants (N = 18) including 3 doctors, 3 nurses, 4 MSWs, 5 care managers, and 3 visiting nurses took part in the study (Table 1).

<Table 1> Basic attributes

Basic license		Age	Sex	Duty place		Length of service (years)
Doctor	1	40s	Male	University hospital	Physician	21
	2	60s	Male	hospital	Surgeon	41
	3	40s	Male	General hospital	Physician	21
Nurse	1	60s	Female	hospital	Discharge support room	30<
	2	40s	Female	hospital	Discharge support room	8
	3	40s	Female	hospital	Discharge adjustment	17
Medical social worker	1	40s	Female	hospital		15
	2	40s	Female	hospital		16
	3	40s	Female	hospital		17
	4	30s	Female	hospital		7
Care manager	1	40s	Female	Home care support establishment	Care job	9
	2	50s	Female	Visit care support	Counselor	17
	3	40s	Female	Home care support establishment	Medical social worker	5
	4	50s	Female	Home care support establishment	Welfare job	5<
	5	50s	Female	Home care support establishment	Care job	11
Health visitor	1	50s	Female	Home nursing station		18
	2	40s	Female	Home nursing station		20
	3	40s	Female	Home nursing station		5<

2. Perceptions about dementia patients, their families, and dementia

We analyzed the content of the interviews. The results indicated the following eight categories consisting of 19 subcategories that included 79 codes; [hospitalized patients have dementia], [patients with dementia are increasing], [dementia gets worse by hospitalization], [symptoms different from dementia are diagnosed as dementia at hospitals], [family's perception is different], [lack of ability to provide care by family members], [discharge coordination is not provided to patients with dementia], and [differences in discharge because of having dementia].

Categories are indicated by [ ], subcategories are indicated by { }, and codes are indicated by < >. Letters after codes indicate Doctors (Dr), Nurses (Ns), Medical social workers (MSW; M), Care managers (C), and Visiting nurses (V).

1) Perceptions regarding patients with dementia

Among the eight categories that were extracted, [hospitalized patients have dementia] and [patients with dementia are increasing] were categories representing perceptions regarding patients with dementia. [Hospitalized patients have dementia] consisted of the two following subcategories and 11 codes; {dementia exists in the base of patients hospitalized because of physical diseases} and {hospitalized patients have dementia}. [Patients with dementia are increasing] consisted of the two following subcategories and seven codes; {patients with dementia are increasing} and {there have been patients with dementia before} (Table 2). The codes, {dementia exists in the base of patients hospitalized because of physical diseases} included <many patients have dementia as well as other diseases, and are often hospitalized again> (V/1), and <some patients repeatedly have aspiration pneumonia and leave the hospital> (V/1) among others, which were extracted from visiting nurses. The codes, {hospitalized patients have dementia} were <most of the hospitalized patients have dementia> (Ns/1) and <most of the patients with diseases have mild dementia> (C/2), which were extracted from professionals other than MSW.

Moreover, the codes, {patients with dementia are increasing} included <I feel patients with dementia are rapidly increasing> (Dr/2) among others, which these codes were often extracted from doctors. The codes, {there have been patients with dementia from before} included <there is no impression that patients with dementia have suddenly increased> (M/3) and <the number of home care patients with dementia is larger than that of hospitalized patients> (V/3), which were extracted from MSW, care managers, and visiting nurses.

<Table 2> Perceptions regarding patients with dementia

Categories	Subcategories	Codes (Basic license/the person number)
Hospitalized patients have dementia.	Dementia exists in the base of patients hospitalized because of physical diseases.	Many patients have dementia as well as other diseases and are often hospitalized again. (V/1)
		Some patients repeat aspiration pneumonia and leave the hospital. (V/1)
		Many people having dementia get cancer, hospitalized and discharged. (V/1)
	Hospitalized patients have dementia.	There are many users having dementia. (V/2)
		The percentage of patients with dementia is rather high. (V/1)
		Approximately half of the elderly have dementia. (V/2)
		Most of the hospitalized patients have dementia. (Ns/1)
		Although not having diagnosed, most of the patients have mild dementia. (V/3)
		Many people are classified into I or II stages of dementia, and not severely demented. (V/1)
		People that are diagnosed and not diagnosed as dementia are increasing. (Dr/3)
		Most of the patients with diseases have mild dementia.(C/2)
Patients with dementia are increasing.	Patients with dementia are increasing.	Patients with dementia are increasing. (Dr/1.2.3, C/3, V/1)
		People with dementia are increasing with aging. (Dr/1)
		I feel patients with dementia are rapidly increasing. (Dr/2)
	There have been patients with dementia from before.	Not many patients with dementia are discharged from the hospital. (C/4)
		There is no impression that patients with dementia have suddenly increased. (M/3)
		Although I have an impression that there are people with dementia, but don't know whether they are increasing. (C/4)
		The number of home care patients with dementia is larger than that of hospitalized patients. (V/3)

*(Dr):Doctors, (Ns) :Nurses, (M):Medical social workers , (C):Care managers, (V) :Visiting nurses

2) Perceptions regarding dementia symptoms

Two categories were extracted: [dementia gets worse by hospitalization] and [symptoms different from dementia are diagnosed as dementia at hospitals]. The former consisted of the following subcategories that included 13 codes; {when getting hospitalized, dementia gets worse} and {the pace of hospital life and restriction worsen dementia}. The latter consisted of the two following subcategories that included four codes; {the symptoms that are not regarded as dementia at home are diagnosed as dementia at hospitals and considered a problem} and {symptoms that are not dementia are diagnosed as dementia} (Table 3).

The codes {when getting hospitalized, dementia gets worse} were as follows; <physical levels rather decline, depending on the hospitalization period> (C/2), <although physical conditions improved, it is difficult to live at home because of dementia> (Dr/3), and <in many cases, cognitive functions further decline through hospitalization and it is impossible for the family to accept the patient> (Dr/3), among others, were extracted from doctors, care managers, and visiting nurses. The codes, {the pace of hospital life and restriction worsen dementia} were as follows; <especially people with dementia feel as if they are tortured. When resisting hospital staff because they did what the patient disliked, including bed-baths or perineal care, the patient is considered heavily demented and physically restrained> (Dr/2) and <patients are not accustomed to the hospital environment. Moreover, different types of care are provided automatically for treatment without patients' consent, getting patients with dementia confused> (C/5), which were extracted from doctors and care managers.

The codes, {the symptoms that are not regarded as dementia at home are diagnosed as dementia in the hospital and considered a problem} were as follows; <symptoms that are not regarded as dementia at home are perceived as dementia when hospitalized> (Dr/2) and <dementia symptoms that did not stand out at home become highlighted by hospitalization> (Ns/1), among others, which were extracted from doctors and nurses. The code of {symptoms that are not dementia are diagnosed as dementia} was <depression, schizophrenia, among others are included in dementia. Patients with such symptoms are discharged from the hospital diagnosed as dementia> (C/2), extracted from a care manager.

<Table 3> Perceptions regarding symptoms of dementia

Categories	Subcategories	Codes (Basic license/the person number)
Dementia gets worse by hospitalization.	When getting hospitalized, dementia gets worse.	Dementia gets worse in nine in ten patients. (C/2)
		Dementia in people having had surgery and returned home gets heavier compared to those without having surgery. (C/2)
		In patients with Alzheimer's disease, the symptoms develop gradually. In patients with cerebrovascular diseases, the symptoms develop slowly to some extent, if not having an attack. Few patients can maintain the condition and gets worse. (V/2)
		Cognitive abilities in people that are hospitalized and need medical treatment for complications rapidly decline. Early discharge is desirable. (V/3)
		Physical levels rather decline, depending on the hospitalization period. (C/2)
		Although physical conditions improved, it is difficult to live at home because of dementia. (Dr/3)
		In many cases, cognitive functions further decline through hospitalization and it is impossible for the family to accept the patient> (Dr/3)
		Family members know that dementia develops by hospitalization. Therefore, some members do not want the patient hospitalized if in-home care is available. (C/5)
		The patient had a compression fracture and hospitalized. If there are no differences between hospital care and in-home care, early discharge is desirable before developing delirium. (V/2)
	The pace of hospital life and restriction worsen dementia.	Patients with dementia get confused because they are forced to obey the rules in the hospital. (C/5)
		Especially people with dementia feel as if they are tortured. When resisting hospital staff because they did what the patient disliked, such as bed bath or perineal care, the patient is considered heavily demented and physically restrained. (Dr/2)
		In the surgical ward and gastrointestinal ward, patients are sometimes restrained for treatment. (C/5)
		Patients are not accustomed to the hospital environment. Moreover, various types of care are provided automatically for treatment without patients' consent, getting patients with dementia confused. (C/5)
Symptoms different from dementia are diagnosed as dementia at hospitals.	The symptoms that are not regarded as dementia at home are diagnosed as dementia at hospitals and considered a problem.	Symptoms that are not regarded as delirium at home are regarded as delirium when hospitalized. (Dr/2)
		The cases in which slightly forgetful conditions are diagnosed as dementia are increasing. (Dr/1)
		Dementia symptoms that did not stand out at home become highlighted by hospitalization. (Ns/1)
	Symptoms that are not dementia are diagnosed as	Depression, schizophrenia, among others are included in dementia. Patients with such symptoms are discharged from the hospital diagnosed as dementia. (C/2)

*(Dr):Doctors, (Ns) :Nurses, (M):Medical social workers , (C):Care managers, (V) :Visiting nurses

3) Perceptions regarding families of patients with dementia

Two categories were extracted below; [family's perception is different] and [lack of ability to provide care by family members]. The former consisted of the following two subcategories that included five codes; {insufficient understanding from family} and {family members have different recognition}. The latter consisted of the following three subcategories and 13 codes; {sometimes family members have dementia}, {it is difficult to decide on a place to live because of lack of ability to care}, and {returning home rather than entering facilities}. See Table 4.

One of the codes {insufficient understanding from family} was as follows; <although family members think the patient still needs treatment, the patient needs care rather than treatment. Family members think the patient cannot leave the hospital without the ability to walk. Some people do not understand that a person cannot enter the hospital without the ability to walk> (M/2). The codes, {family members have different recognition} were extracted from MSW and nurses, including <family members say that the patient does not have dementia because he/she behaved properly at home> (Ns/1), among others.

The codes, {sometimes family members have dementia} were extracted from MSW, including <the head of the family, i.e., the key person, or his wife, has mild dementia> (M/2) and <the person living with the patient has dementia. In some cases, the person that has been taken care of the patient gets sick> (M/2), among others. The codes for {it is difficult to decide on a place to live because of lack of ability to care} were extracted from doctors, MSW, and visiting nurse, including <caregivers do not have sufficient ability to care, or, family members are working during the daytime and cannot take care of the patient> (V/1), <many patients live alone or live with another person at home. It is difficult for them to live daily life by themselves, including drug and toilet management, among others.> (V/1), and <family members released from caring for the patient by hospitalization cannot return to their previous life, and want the patient to stay in hospital> (Dr/2), among others. The codes, {returning home rather than entering facilities} were extracted from care managers, including <although looking for care facilities, the facilities did not accept the patient and there was no choice but to return home> (C/5) and <in many cases, patients return home rather than entering a facility> (C/1), among others.

<Table 4> Perceptions regarding families of patients with dementia

Categories	Subcategories	Codes (Basic license/the person number)
Family's perceptions are different.	Insufficient understanding from family.	Although family members think the patient still needs treatment, the patient needs care rather than treatment. Family members think the patient cannot leave the hospital without the ability to walk. Some people do not understand that a person cannot enter the hospital without the ability to walk. (M/2)
		It is difficult to decide how much asking for understanding from family. (M/2)
	Family members have different perceptions.	The patient him/herself does not recognize that he/she has dementia. Family neither. (M/2)
		Sometimes family members refuse to receive service and support. It is difficult to let them accept the service and support. (M/2)
		Family members say that the patient does not have dementia because he/she behaved properly at home. (Ns/1)
Lack of ability to provide care by family members.	Sometimes family members have dementia.	Often family members have dementia. (M/2)
		The head of the family, i.e., the key person, or his wife, has mild dementia. (M/2)
		The person living with the patient has dementia. In some cases, the person that has been taken care of the patient gets sick. (M/2)
	It is difficult to decide the place to live because of the lack of ability to care.	It is difficult to take care of the patient at home. For example, people that had been living alone cannot live by themselves anymore, or, the old husband is taking care of his old wife, and vice versa. Even if children live together, it is difficult for them to take care of their demented parents. (Dr/3)
		Caregivers do not have enough ability to care, or, family members are working during the daytime and cannot take care of the patient. (V/1)
		Many patients live alone or live with the other person at home. It is difficult for them to live daily life by themselves, including drug management and excretion management, etc. (V/1)
		There are various cases. It is difficult to deal with patients with dementia living alone. (M/2)
		Family members that were released from taking care of the patient by hospitalization cannot return to the previous life and want the patient to stay in the hospital. (Dr/2)
		It takes time to decide the place to live. There are facilities that do not accept the demented patients. (Dr/3)
	Returning home rather than entering facilities.	Those that have not diagnosed as dementia, but might have dementia, often return home. (C/1)
		In many cases, patients return home rather than entering a facility. (C/1)
		Although looking for care facilities, the facilities did not accept the patient and there was no choice but to return home. (C/5)
		The mean number of the case of returning home is approximately 10 a year. (C/1)

*(Dr):Doctors, (Ns) :Nurses, (M):Medical social workers , (C):Care managers, (V) :Visiting nurses

4) Perceptions regarding discharging patients with dementia

Two categories were extracted; [discharge coordination is not provided to patients with dementia] and [differences in discharge because of dementia]. The former consisted of the following three subcategories that included 14 codes; {there are no problems in the discharge of patients with dementia}, {home-visit nursing for patients with dementia is not accepted when the original disease has been cured}, and {professionals involved in discharge differ depending on the symptoms}. The latter consisted of the three following subcategories that included 12 codes; {patients are discharged because of having dementia symptoms}, {there is no rapid discharge from the hospital because of dementia}, and {certain conditions are required for hospital discharge}. See Table 5.

The codes, {there are no problems in the discharge of patients with dementia} were extracted from doctors, care managers, and visiting nurses, including <coordination of discharge date is not necessary for patients with dementia because they rarely prepare welfare goods> (V/1), < patients with dementia do not need any discharge coordination> (C/4), and <there are no problems in the discharge of patients with dementia> (Dr/3). The codes, {home-visit nursing for patients with dementia is not accepted when the original disease has been cured} were extracted from visiting nurses, including <it is very important to understand the physical conditions by home-visit nursing because patients with dementia cannot tell their medical conditions by themselves. However, when physical conditions are stable, home-visit nursing is hardly accepted> (V/2) and <when the original disease has been cured even having dementia, requests for home-visit nursing are very few> (V/2). The codes, {professionals involved in discharge coordination differ depending on the symptoms} were extracted from visiting nurses and care managers, including <when patients have dementia, they refuse to receive nursing> (C/5) and <discharge of terminal cancer patients is supported by the visiting care system through collaboration among doctors, nurses, patients' family, visiting nurses, and home caregivers> (C/5).

The codes, {patients are discharged because of having dementia symptoms} were extracted from care managers and nurses, including <some patients often return home the next morning because of dementia> (C/5), <some patients ask the discharge date when intravenous drips finish> (Ns/2), and <it is difficult to provide treatment because of dementia> (C/5), among others. The codes, {there is no rapid discharge from the hospital because of dementia} were extracted from care managers, including <there has been no discharge because of dementia, although sometimes patients with dementia have been discharged suddenly because there was another patient that needed immediate hospitalization> (C/4). One of the codes, {certain conditions are required for hospital discharge} was extracted from a doctor; <firstly, the previous support system should be confirmed. When the patient had a care manager or received home-visit nursing, and home-visit medical treatment, the patient's current conditions should be explained to the staff, necessary care and nursing are coordinated, and then the patient returns home> (Dr/2).

<Table 5> Perceptions about discharging patients with dementia

Categories	Subcategories	Codes (Basic license/the person number)
Discharge coordination is not provided to patients with dementia.	There are no problems in the discharge of patients with dementia.	When the dementia level and ADL do not change through hospitalization, patients return home without having a conference. (Dr/2)
		Patients with dementia were returned home without having a discharge conference. Now, they have a conference before discharge. (C/1)
		Coordination of discharge date is not necessary for patients with dementia because they rarely prepare welfare goods. (V/1)
		Patients with dementia do not need discharge coordination. (C/4)
		There are no problems in the discharge of patients with dementia. (Dr/3)
		There is no discharge coordination for patients with dementia. (C/4)
		When having a conference, it is difficult to ask the patient's intention because he/she is demented. (C/4)
		We rarely participate in discharge coordination for home-visit nursing for patients with dementia. (V/2)
	Home-visit nursing for patients with dementia is not accepted when the original disease has been cured.	When the original disease has been cured even having dementia, requests for home-visit nursing are very few. (V/2)
		It is very important to understand the physical conditions by home-visit nursing because patients with dementia cannot tell their medical conditions by themselves. However, when physical conditions are stable, home-visit nursing is hardly accepted. (V/2)
	Professionals involved in discharge coordination differ depending on the symptoms.	Responding to the request from a care manager, a visiting nurse participated in discharge coordination. (V/2)
		When patients have dementia, they refuse nursing. (C/5)
		There is no chance to talk with a doctor in a big hospital. (C/5)
		Discharge of terminal cancer patients is supported by the visiting care system through collaboration among doctors, nurses, patients' family, visiting nurses, and home caregivers. (C/5)
Differences in discharge because of having dementia.	Patients are discharged because of having dementia symptoms.	Patients living home return home as soon as possible even when they are hospitalized. (C/5)
		Some patients often return home the next morning because of delirium. (C/5)
		Treatment is the first priority at a hospital. When delirium occurs, or medical restraint is required, I sometimes picked up the patient because treatment was impossible. (C/5)
		Some patients ask the discharge date when intravenous drops finish. (Ns/2)
		It is difficult to provide treatment because of dementia. (C/5)
		Patients with dementia do not positively receive treatment. They received outpatient service more often than hospitalization. (Ns/3)
		Some patients with dementia are discharged because of a decline in swallowing functions. (V/1)
	There is no rapid discharge from the hospital because of dementia.	There is no rapid discharge because of dementia. (C/4)
		There has been no discharge because of dementia, although sometimes patients with dementia were suddenly discharged because there was another patient that needs to be hospitalized immediately. (C/4)
	Certain conditions are required for hospital discharge.	Admission is decided based on the policies of the facility, not whether having dementia or not. (M/3)
		Firstly, the previous support system should be confirmed. When the patient had a care manager or received home-visit nursing and home-visit medical treatment, the patient's current conditions should be explained to the staff, necessary care and nursing are coordinated, and then the patient returns home. (Dr/2)
		After a certain period of hospitalization, the patient should return home. (V/2)

*(Dr):Doctors, (Ns) :Nurses, (M):Medical social workers , (C):Care managers, (V) :Visiting nurses

V. Discussion

1. Perceptions regarding patients with dementia and symptoms of dementia

Professional workers involved in the discharge of patients with dementia recognized that {in the base of patients hospitalized because of physical diseases, dementia exists}. or {hospitalized patients have dementia}. As reported by MHLW (2016) patients with dementia accounted for approximately 20%, and in long-term care hospitals, patients with dementia accounted for 60% or higher in wards with a patient-to-nurse ratio of 7:1 or 10:1. The results indicated that professionals working in hospitals perceived that many inpatients have dementia. Moreover, doctors recognized that {patients with dementia are increasing}, MSW, care managers, and visiting nurses perceived {there have been patients with dementia from before}. These perceptions might be the result of such professionals interacting with many patients with dementia to date when conducting discharge duties and support activities.

Doctors, care managers and visiting nurses recognized the following: {when getting hospitalized, dementia gets worse} and {the pace of hospital life and medical restriction worsen dementia}. Miyoshi (2017) suggested that people with dementia are people that could not adapt to aging. When such people experience environmental changes, it is possible that the symptoms get serious and problem behaviors increase. Moreover, older adults feel much stress with lifestyle changes. It is suggested that patients and older adults with dementia cannot adapt themselves to environmental and lifestyle changes caused by hospitalization, which leads to the deterioration or the onset of dementia symptoms. MHLW (2015) reported that both early responses to physical complications and appropriate measures for dealing with dementia among others, are required in acute care hospitals. However, it is sometimes difficult to individually manage each patient with dementia appropriately, which result in the rapid worsening of dementia symptoms. This situation might lead to perceptions including {patients with dementia are increasing} and {when getting hospitalized, dementia gets worse}. Moreover, perceptions including {the symptoms that are not regarded as dementia at home are diagnosed as dementia in the hospital and considered a problem} (<symptoms that are not regarded as dementia at home are regarded as dementia when hospitalized> (Dr/2) and <dementia symptoms that did not stand out at home become highlighted by hospitalization> (Ns/1)), or, {symptoms that are not dementia are diagnosed as dementia} (<depression, schizophrenia, among others are included in dementia. Discharging such patients with these symptoms from the hospital, with a diagnosis of dementia> (C/2)) might lead to the recognition, {patients with dementia are increasing}.

2. Perceptions regarding families of patients with dementia and discharge from hospital

Families of patients with dementia were recognized mainly by MSW as follows; <although family members think the patient still needs treatment, the patient needs care

rather than treatment. Family members think the patient cannot leave the hospital without being able to walk. Some people do not understand that a person cannot enter a hospital without being able to walk> (M/2) ({insufficient understanding from family), or, <family members say that the patient does not have dementia because he/she behaved properly at home> (Ns/1) ({family members have different recognition}).

The Japan Medical Association (2016) has stated; "patients and their families tend to think that patients are discharged from hospital when they recover to a state that is similar to the condition before entering the hospital. However, in many cases, patients still need medical support, or, might be in a state in which different functions have declined. Therefore, patients and their families tend to be anxious about life after discharge.

Moreover, families have got accustomed to the condition of patients that had mild dementia before entering the hospital and might have doubts about being diagnosed with dementia, or, find it difficult to accept the diagnosis. Therefore, especially MSW who must conduct the discharge procedures with families first might have recognized that {family members do not have sufficient understanding} or {family members have different perceptions}. Moreover, medical workers might express all the symptoms of a patient, including dementia symptoms and temporary confusion as dementia. Both medical workers and families might not correctly understand dementia symptoms, leading to perceptions such as {insufficient understanding from family} or {family members have different recognition}.

According to Matsuo (2011) when communication with older adults with dementia is difficult, or their behavior is unpredictable, nurses tend to be abrupt without finding a permanent solution to their problems, because of their lack of experience or prejudices. This is because nurses are unaware of appropriate methods for managing these patients. As a result, it is necessary for medical professionals to acquire appropriate knowledge for assessing patients with dementia during acute medical care. Moreover, there are few nurses in hospital wards that have the experience of being a visiting nurse or doing welfare-related work. Therefore, it is difficult to share the experiences or an image of patients' life at-home among nurses (Kawashima et al., 2015). Not only nurses but also doctors and MSW cannot imagine patients' life at-home, which result in differences in perceptions about discharge and the coordination of discharge.

Matsuoka (2011) stated that most patients with dementia are older adults having various chronic diseases and a decline in physical functions. Therefore, an interprofessional team approach is required for managing their physical and various psychological and social care needs, including problems related to nursing care. However, the results of this study indicate that staff involved in discharging patients with dementia recognized that [discharge coordination is not provided to patients with dementia] including subcategories such as, {there are no problems in the discharge of patients with dementia} and {home-visit nursing for patients with dementia is not accepted when the original disease has been cured}.

In terminal care for cancer patients, among others, it is possible to listen to patients' and their families' opinions and set goals based on their opinions. On the other hand, in the case of patients with dementia, it is difficult for them to express their desires, which might lead to the perception that [discharge coordination is not provided to patients with dementia]. Ozawa et al. (2014) stated that when patients maintain verbal abilities, medical workers can use language to communicate with them. However, when patients have language impairments, communication tends to be with patients' families or caregivers, instead of the patients themselves. Moreover, in many cases when elderly patients with dementia are discharged from the hospital, their husband or wife also tend to have dementia. Furthermore, the number of older adults living alone has been increasing recently, which might lead to difficulties in discharge coordination for patients with dementia.

MHLW (2012) reported that there are families hoping for in-home care, but hesitate about discharge because of the heavy load imposed on them. Patients with dementia often need medical support, or, have a decline in various functions compared to before hospitalization. Therefore, patients and their families tend to feel anxious about life after discharge (Japan Medical Association, 2016). It is necessary to have a conference for developing interprofessional collaboration before a discharge, through which patients, their families, and members supporting home care can directly meet one another, decide the future care system, and thereby reduce anxiety associated with being discharged (Japan Medical Association, 2016). However, MHLW (2015) reported that only under 50% of dementia patients were discharged after taking measures including "a conference to discuss methods of providing home care," "taking manual based preventive measures," and "dealing with the patients depending on the conditions according to nursing plans."

At the conference, medical and welfare professionals can discuss the common topics and based on their specialty, strong or weak points, and limitations, among others. Through collaboration, they can experience synergistic effects, leading to an improvement in service quality. Having a conference is a simulation having a sense of reality. Accumulating such experiences can lead to team formation (Shinoda, 2011). It is necessary to have a conference not only at the discharge of patients with dementia but also during hospitalization. However, there are difficulties in functioning as a care team. According to Naruse and Uda (2018), medical professionals responded that "the abilities of other professions are unknown. Therefore, it is difficult to decide the level at which we should talk to them," and nurses responded, "we cannot honestly talk with other professionals," and welfare workers responded, "there is a wall between other professionals and us." Especially they felt a distance from medical professionals. Moreover, Kikuchi (2000) indicated that a unique structure (positions and roles) in the team approach is formed during interprofessional collaboration, which causes consistent or inconsistent problems with the organizational structure (positions and roles). Furthermore, Kamiyama and

Sasaki (2011) reported that there are communication gaps between care workers and medical professionals because their knowledge bases are different, and filling this gap is an urgent issue.

This study examined perceptions regarding patients with dementia and their families, as well as dementia symptoms in different professionals involved in the discharge of patients. Moreover, a code was extracted for certain subcategories from different types of professionals or from a specific type of professional. It was suggested that the perception of patients with dementia and dementia symptoms might differ depending on the occupation. That said, this study was limited by a small number of interviewees, and coding may have been biased due to a semi-structured interview format. In the future, effective measures for reducing the communication gap among professionals should be developed for improving discharge coordination and support after discharge.

VI. Conclusions

Eight categories of perceptions regarding patients with dementia, their families, and symptoms of dementia in professionals involved in the discharge of patients were extracted in this study. These included: [hospitalized patients have dementia], [patients with dementia are increasing], [dementia gets worse by hospitalization], [Symptoms different from dementia are diagnosed as dementia at hospitals], [family's perception is different], [lack of ability to provide care by family members], [discharge coordination is not provided to patients with dementia], and [differences in discharge because of having dementia]. A code was extracted for some subcategories from different types of professionals or a specific type of professional. Results suggested that the perception of patients with dementia and dementia symptoms differ depending on the occupation.

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ORIGINAL ARTICLE

A Study on the Policy Promotion for the Revitalization of Korean Social Venture

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ABSTRACT

The purpose of this study is to determine the political implications to activate social ventures in Korea. These efforts may create various social impacts, such as social innovation, employment of vulnerable classes, expansion of social services, and job creation for young adult employment. Two policy tasks are proposed as an institutionalization plan to foster the social venture ecosystem. First, based on the social enterprise promotion law, social venture-type social economy enterprises aiming to solve social problems are set up as separate categories, and support programs that are different from existing social enterprise support policies, such as mid- to long-term R&D support. Another approach that may be considered is to define separately the social venture business development sector in venture business development. Secondly, there is an approach to institutionalize social venture support that differs from existing social economy enterprise support. After social venture activity is initiated, it can be considered as a mid- and long-term development plan.

＜Key-words＞
social ventures, social innovation, social ventures ecosystem

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I. Introduction

A social venture is defined as an innovator start-up that creatively operates to produce impact value that is treated as a new political alternative for South Korea's social problems, such as economic slowdown or youth unemployment. However, social ventures are facing limitations with regards to insufficient institutional support and not creating numerous social values. The government budget for start-up support initiatives for small and medium businesses was 2 trillion KRW (about 1680 billion dollars), whereas administrative support for social ventures is only about 15billion KRW (about 12.6million dollars). According to the Korea Small Business Institute (2018), these disparities have a crucial impact on the development of social ventures. The average sales in social ventures (55 million KRW) were significantly lower than sales of ventures overall (6.8 billion KRW). Therefore, the purpose of this study is to determine the political implications to activate social ventures. These efforts may create various social impacts, such as social innovation, employment of vulnerable classes, expansion of social services, and job creation for young adult employment.

A social enterprise is defined as an "organization that solves social problems through the employment of vulnerable classes, the supply of social services, and contribution to community", and a social venture can be understood as a "start-up that is established by a small number of entrepreneurs to commercialize the innovative ideas for solving social problems" (Lee, et al., 2013). Therefore, social ventures are a form of company that flexibly tackles the major challenges in society. For instance, Marymond (marymond.kr), a social venture that supports older adults who have suffered from sexual slavery in Second World War, employs 60 people, achieves annual sales of 10 billion KRW, and is one of best practices that has attained both business competitiveness and a social mission. The terms 'Social enterprise' and 'Social venture' are used interchangeably in Korea, as was found in the government's announcement on the activation of the social economy in the second half of 2017. The governmental intention was to emphasize the impact of investment funds for social ventures and job creation; however, the scholars and the public has agreed that the announcement lacks specific political plans.

As with the ambiguity in the term, the legal bases of a social venture are more ambiguous than that of a social enterprise, and the support for social ventures hardly exists. After the enactment of 'the social enterprise promotion in 2007', a social enterprise can be certified as 'social enterprise' or 'preliminary social enterprise' if it satisfies certain conditions, such as sales scale, the number of paid employees, and realization of a social objective through business. After being recognized for legal status, a social enterprise can receive a variety of support from the government such as managerial support on management, technology, taxation, accounting, education and training, facility expenses, tax exemption, social insurance premium support, priority purchase of public institutions. These types of support however do not apply to 'social venture', because there is no legal basis or support system (Lee, et al., 2018).

Therefore, research and policy agenda are needed due to the lack of knowledge on how to support social ventures and ways to attract social ventures to continue their endeavors in solving social problems. Also, the need for enacting a social venture policy is receiving support from a variety of people is politics, academia, and social economy. However, there are few studies on social ventures for the formation of various discourses, which is essential for policy making, and there is no research on what support social ventures need, what are powerful incentives, and what is effective regulation. If policy on the social venture is enacted, the domestic social venture area becomes the main actor of the social economy, which can have a positive effect on is activation in the future. Ultimately, social ventures will help solve social problems through innovative ideas.

II. Status and Problems of Social Venture Policy

Compared to the social enterprise support system which is bolstered by the central government level, the support for social ventures is insufficient, and the legal basis for social venture development is not yet established.

1. Insufficient support system of the social venture

Since major developed countries have no fixed legal terms and requirements for ‘social enterprise’, they are supporting social enterprises as they support various types of organizations and enterprises that aim to achieve social purpose in a comprehensive manner (Leadbeater, 2007). On the other hand, in Korea the government is promoting various support for social enterprise only if the organization is certified as a social enterprise. Therefore, social ventures, not having a clear legal position yet, have a difficult time without any support.

There are a variety of support programs for organizations related to social economies such as social enterprises, cooperatives, village enterprises, and self-help companies through legal conditions, certification and accreditation procedures. However, social ventures have no specific support programs as well as separate authentication procedures. A social enterprise that can acquire various support programs such as labor costs, business development cost, and education must comply with the certification requirement which stipulates strict rules concerning prohibiting reinvestment of 2/3 or more of profit and maintaining democratic decision-making structure. Due to these rigid requirements, social ventures that realize social purpose by creating financial profit do not yearn for certification as do social enterprises (Jang, 2017).

Social enterprises and social ventures have different goals, and this makes it difficult for social ventures to gain support in the context of a social enterprise. Specifically, social enterprises mainly focus on providing employment to the vulnerable and the low-income class and yielding social services; whereas, social ventures, even though they share some common goals like community integration and social innovation, seek a wide arrange of social purposes that social enterprise typically do not handle. As a result, diverse social innovation ideas that solve various social problems such as health, welfare, employment, environment, and housing are not leading to the establishment of a social venture (Kim, S, et al., 2015) [Table 1.].

<Table 1> Legal Standards and Certification System of Social Economy Enterprises

Division	Social Enterprises	Cooperative Firms	Community Enterprises	Self-sufficiency Enterprises
The nature of the corporation	profit/ Non-profit	(profit) Corporation	Profit Corporation	Corporation (Partnership/ Business)
Subject	Representative	Co-Founder (More than 5 people)	Co-Founder (More than 5 people)	Recipients who received beneficiary of self-support work project Or low income persons
Target of Business	low income persons	Citizen and Interest group	Local residents	Low Income Vulnerable group
Foundation (Certification)	Ministry of Labor certification	Report of branch office (Accreditation Cooperatives are authorized by relevant Ministries)	Recommend local government screening → Designated in Ministry of Public Administration and Security screening	Recognition of Guarantee
Requirement of the Foundation Requirement of the Certification)	Realize of the purposes, By laws, Use of social purposes for profit, Democratic decision-making structure, Hiring Paid Workers etc.	Social cooperatives perform more than 40% of public utilities	Village residents invested more than 10% of total project cost,70% or more of the residents etc.	Requirements of Self-support company (1/3 or more of beneficiaries, profit sharing, working days, etc.)
Social Purpose (Business Purpose)	Creating jobs for the vulnerable people, Promotion of social welfare and services	Spend more than 40% of project costs on state utilities	Local troubleshooting, Community Contribution, Regional economic development and revitalization	Inspiring self-sufficiency and creating jobs
Regal Reserve	-	10% or more of net profit (30% or more for social cooperatives)	Appropriate loss of more than 10% of net profit, reserve of reinvestment of more than 50% of net profit	-
Allocation	Less than one third of profit (more than two thirds of profits for social purposes)	Dividend available, Prohibition of more than 10% of paid-in capital (social cooperatives do not divide)	Dividend available	Allocation of profits above market standard income

Source: Korea Small Business Institute (2018)

1) The absence of foundation for upbringing social venture

Social ventures do not have a clear legal status. Therefore, the government authority responsible for them is ambiguous. Social enterprises are regulated by The Ministry of Labor, community enterprises are supported by the Ministry of Public Administration and Security, the self-sufficiency enterprise is in charge of the Ministry of Health and Welfare, the cooperative is supported by the Ministry of Strategy and Finance, venture development is led by the Department of Small, Medium, and Venture Businesses. There are no ministries that handle social ventures which have both social economy and venture businesses (Lee, et al., 2018).

Governmental support for social enterprises such as subsidize labor costs, social insurance premiums, and business expenses are not as relevant to the specific need of social ventures. Most of the support for social enterprises is financial support such as subsidizing personnel expenses and business expenses, or to finance or secondary finance business for settlement and business funds, and lack of support for research and market development. Social ventures based on social innovation should realize a business model that can achieve social value through maintenance and sustainable growth of a company. Therefore, R&D investment and market research for a social venture is as important as for any venture in general (Korea Small Business Institute, 2018) [Table 2].

<Table 2> Social Economic Enterprise Support System and Main Contents of Supports

Division	Ministries, Support organization	Budget (year)	Main Contents of supports	
			Individual level	Common level
Social Enterprises	Ministry of Employment and Labor, Korea Social Enterprise Promotion Agency	151 Billion KRW ('18)	Labor costs (expert personnel), Social Insurance Premium, Business Development Costs, Tax benefits, etc.	Training and mentoring, Entrepreneurship Support, Management Consulting, Sales connection(public procurement) and PR support Policy fund loans, etc.
Cooperative Firms	Ministry of Strategy and Finance, Korea Social Enterprise Promotion Agency	4.3 Billion KRW ('18)	Project cost, business development cost, etc.	
Community Enterprises	Ministry of Public Administration and Security, Community Enterprise Support Center	7 Billon KRW ('18)	Project cost (Foundation supports) etc.	
Self-sufficiency Enterprises	Ministry of Health and Welfare, Central Self-Support Center	12.2 Billon KRW ('16)	Labor costs, Consulting fees, Rental fees, Founding Funds, Mechanical equipment costs, Facility reinforcement costs, ect.	

Source: Ministry of Health and Welfare (2017); Ministry of Public Administration and Security (2019); Ministry of Employment and Labor (2019).

In addition, there is a lack of administrative resources for social ventures such as statistics and survey reports which are the basis of policy development, as well as specialized support and infrastructure. Survey reports on not only social enterprises, cooperatives, and self-sufficiency companies, but also venture business take place annually; however, there is no official report on social ventures currently, consequently it is difficult to pinpoint current status, major characteristics, and policy demand.

2. The current of social venture ecosystem

Chapter 2 examines the current situation centered on human capital, the core ecosystem of social venture startups, and financial capital required for growing social ventures.

1) Human capital

The core of human capital in social ventures depends on two policies: nurturing social venture entrepreneurs and fostering human resources for intermediary organizations that support them. In terms of human capital in social ventures, there is a lack of awareness of social ventures and a shortage of training for social venture entrepreneurs. Currently, there is no department within government that handles social ventures. Only the Ministry of Employment and Labor, which nurtures the social economy, regards social ventures as one form of an uncertified- or preliminary- social enterprise. Therefore, there is no official system to cultivate social innovative venture entrepreneurs in a practical sense. The Ministry of Employment and Labor categorizes pre-founder or early-stage startups as social ventures that prepare for start-up in order to achieve the social purpose of the social enterprise. Some start-up social companies have a social venture orientation. However, few social enterprises have such an orientation.

The Ministry of Employment and Labor has recognized a total of 2,622 entrepreneurial teams supported by ‘social enterprise development project’ as social ventures from 2011 to 2017. A company that does not meet social enterprise qualification conditions but aims to realize the social purpose is designated as ‘preliminary social enterprise’ (1,108 at the end of 2016), and preliminary social enterprise is also considered as a type of social venture. The startup team and the prospective social enterprise are considered to be oriented toward social enterprise certification, but many start-up teams withdraw from achieving social enterprise certification due to rigid regulations that hinder innovative activities (Lee, 2018).

Presently, intermediary support organizations are incubating social enterprises in various ways. In particular, there are many intermediate support organizations that support social enterprises, whereas there is a lack of intermediary support organizations that mainly support social ventures. Some intermediary support organizations operated by the private sector provide the impact investment and the common workspace to a social venture, but there is no public intermediary support organization that is specialized in social ventures (Korea Small Business Institute, 2018).

2) Financial capital

(1) Immaturity of impact investment market

Most social ventures acquire financial capital, which is the core foundation of social venture fostering, from impact investment. However, impact investment in Korea has shown immaturities.

The total amount of impact investment in Korea is only about 53.9 billion KRW in 175 cases, as of 2015. According to the Global Impact Investment Network (GIIN), the global impact investment in 2017 grew to almost $228.1 billion (about 250 trillion KRW), nearly doubling from $201.4 billion in 2016. This shows that the total amount of financial capital is growing rapidly. The investment sector is also diversifying, with financial services (19%), energy (14%), microfinance (9%) and housing (8%) (Korea Small Business Institute, 2018) Since there is no governmental funding that promotes private impact investment, such investment has only been sourced from a few professional angel funds. There is no fund for the social venture from the government-funded funds, such as the mutual fund and the growth ladder fund, before 2019. The government plans to establish an impact fund for social ventures since the second half of 2018, the Korea Social Value Solidarity Fund(www.svsfund.org) was launched in January 2019.

The Social Value Solidarity Fund was established to contribute to the development of a sustainable social financial ecosystem and social economic revitalization. As Korea's first social finance whole fund, the Social Value Solidarity Fund was established through a public-private partnership based on the government's social finance activation plan. Funds will be raised to 300 billion KRW over five years, and will voluntary donations and contributions, and contributions from the private sector. The Social Value Solidarity Fund promotes projects such as the provision of 'endurance capital' for the growth of a social economic organization, and supports project for prevention and solution of social problems including social performance incentive businesses (SIBs), development of social financial intermediary, and build a market base. Moreover, the Social Value Solidarity Fund will cooperate with various policy funds and private funds to operate various projects, such as investment and loans, in accordance with the financial demand of the social economy.

(2) Constraints in fund accessibility due to lack of impact investment and evaluation of the social value

Developed countries have established a variety of social valuation models, and financial means such as equity, loans, and bonds for social purpose projects, and are actively being utilized. There are several evaluation systems for social enterprises led by the private sector, such as Social Return On Investment (SROI) by Roberts Enterprise Development Fund (REDF), GIIN's Impact Reporting & Investment Standards (IRIS), and B lab's Global Impact Investment Rating System (GIIRS).

The SROI was developed by REDF, the American investment fund, and upgraded by the New Economics Foundation (NEF), the nonprofit research organization, and is widely used in the United States and the United Kingdom. The SROI is an evaluation model that quantitatively measures the social and economic value created by an organization. It helps to calculate the social value as an economic value based on cost-benefit analysis. IRIS and GIIRS serve as criteria or performance indicators for impact investment and as a rating or rank for the company. The IRIS developed by GIIN has the characteristics of an index directory that summarizes the impact reporting and investment criteria. GIIRS is developed by B Lab based on IRIS. It evaluates the impact of the enterprise or project, assigns the rating, and is used as a means of authenticating a company that creates impact (Korea Small Business Institute, 2018).

In Korea, there is no social evaluation (social value) model that is commonly used in venture investment and financial institutions. Although the Korea Social Enterprise Promotion Agency(www.socialenterprise.or.kr) has developed a ‘Social Value Index’ that measures social performance, it is too simple and insufficient for financial transactions such as investments, loans, and guarantees. SK, one of Korea's leading companies, also has developed and used the Social Process Credit (SPC) for the purpose of paying social benefits and incentives to partner companies, and it is difficult to utilize SPCs for impact investment, because it is a model for measuring social performance to award economic incentives.

3) Other features of ecosystems: lack of sales base in the private market and immaturity of the social services market

Since there is little public awareness of social ventures, it is difficult for consumers to access the market of a social venture. At the same time, social ventures suffer from securing the demand in a scarce market. The main problems that the entrepreneur teams benefited from in the “Social Entrepreneurial Growth Project” of Korea Social Enterprise Promotion Agency were identified as ‘financing’ followed by ‘opening a market’. Also, in the survey on social enterprise by the small and medium business research institute, among the difficulties faced in the operation stage of social enterprise, ‘finding a market’ was the second highest following ‘financing’. In other words, it is necessary to establish the policy ecosystem of the state such as the development of the financial capital for cultivating the social venture (Korea Small Business Institute,2018).

In addition, small-scale social venture companies cannot open aggressive domestic sales channels due to lack of advertising expenses and vulnerable sales networks, and they are relatively short of exports. Therefore, the social venture market faces difficult with opening a private market, and the social service market is also immature.

3. The policy agenda regarding cultivating social venture

Based on the Korea Small Business Institute (2018), Lee, et al(2013) and other research papers, three policy tasks were presented. First, proposing social venture identification and valuation system establishment. Second, this study suggests ways to support social venture startups and foster human capital and revitalize promising social venture businesses. Third, proposing ways to spread successful models such as fostering financial capital, supporting R&D and marketing, and fostering social venture clusters by supporting social ventures during the growth period.

1) social venture identification and valuation system establishment

(1) Providing a guideline for the discernment of social ventures from the bottom-up

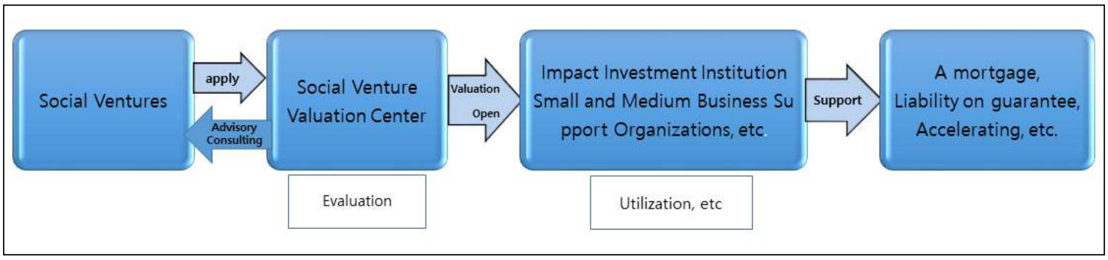
Private-led social venture discernment guidelines can be provided in two ways. First, the concept of the social venture should be clarified and guidelines for its discernment that can be used for government support and market trading should be prepared and presented. Social venture discernment criteria should be established for in a socially acceptable manner regardless of whether they are certified either as a social enterprise or social venture, so that the guideline may be used to select the type of government support and minimize ambiguity of judgment in the selection of impact investment. Rigid criteria may deter social ventures to achieve various social purposes and can delay the expansion of the social venture base. Therefore, flexible discernment criteria should be established. Concurrently, the guideline for the discernment of social ventures needs to be developed in such a way that the social venture should be broadly defined, and the criteria should be presented minimally so that it can be modified and supplemented for various purposes. As a method of preparing the guideline, it is desirable that it should involve various private stakeholders in order to enhance social cohesion (Korea Small Business Institute,2018).

(2) Establishment and diffusion of social venture valuation system

The first step is to develop social venture evaluation model. It is important to develop an evaluation model that can comprehensively and rationally judge the social purpose of the social venture, the innovation of the business model, and the growth potential of the company. Considering various types of social venture support, it is necessary to develop and utilize two evaluation models, 'enterprise unit' and 'project unit'. In the case the former, for the enterprise unit, it can be used as the objective basis of the enterprise value in receiving the investment, loan, and guarantee of the enterprise unit on the basis of the social performance. In the case of the latter, for a project unit, it can be used as an element of qualification, such as the realization of the social purpose, commercialization, R&D when selecting project for subsidy.

Second is to establish the social venture value evaluation center. The social venture value evaluation center can serve in spreading the evaluation guideline and supporting various commercialization opportunities by issuing and providing a credible evaluation report on the level of value created by a particular social venture. In November 2018, the government established a social venture value evaluation center in the Korea Technology Finance Corporation(www.kibo.or.kr). The center provides complete services for the start-up and growth of social ventures, such as a discovery of new social venture, financial support, and consulting. The centers also provide the discernment criteria when evaluating social venture, the evaluation materials to the private sector, and management of private advisory groups. Ultimately, the center will play a role as the start-up platform of social venture by implementing infrastructures for the social venture [Fig. 1] .

[Figure 1] Business Process of Social Venture Valuation Center



<Figure 1> Business Process of Social Venture Valuation Center

Source: Korea Small Business Institute(2018)

2) Strengthen social venture start-up

(1) Activate social venture start-up

To activate a social venture start-up, it is necessary to foster social ventures with excellent technology. To this end, it is necessary to select an operator who invests heavily (more than 50%) in social venture through Tech Incubator Program for Start-up (TIPS) program. Therefore, the selection of a social venture investment operator will be conducted after a survey of participation intentions and investment results for accelerators, etc., and preferential treatment will be given, such as granting added points for selection (Choi, 2018).

Secondly, expanding specialized R&D support for social ventures is needed. Enlarging specialized R&D support of social venture is needed to increase the possibility of technology-based social venture success. In order to strengthen R&D capabilities, it is necessary to implement joint use of the equipment and consulting technology through networking between government-funded research institutes, universities, and social ventures. Also, social economic organizations, such as social ventures, must be obligated to participate in social problem-solving technology development projects in the case of existing R&D projects, and allow social ventures an opportunity for business planning and demonstration in terms of ICT good imagination project. If new R&D projects are closely related to the realization of social values, it is necessary to promote the participation of social economy organizations such as social ventures through incentives (Choi, 2018).

Thirdly it is necessary to train the social venture pre-founder team based on technology-based solutions for local and social problems. It is critical to nurture a technology-based social venture pre-founder team that can solve the problems of the community with innovative ideas that combine science, technology, and ICT. To this end, Public Center and educational institutions (i.e., universities, etc.) collaborate to promote common education for youth innovators and pre-founders, thereby promoting the creation of technology-based social ventures by providing team projects for the commercialization of innovative ideas.

Fourthly, strengthening step-by-step program execution to support social venture start-up and growth is needed. Social venture development programs should be designed in a step-by-step manner, including finding ideas, fostering entrepreneurship, and supporting growth. Therefore, to discover social venture start-up ideas, it is necessary to actively execute social venture idea contest among youth, university students, business start-ups, and global businesses. Toward fostering entrepreneurship, it is crucial to expand the scope of participation in the 'Youth Social Entrepreneurship Promotion Project', which provides one-stop support for the start-up process to social innovation social ventures, including start-up space, funding, and mentoring. For the sake of supporting the growth of social venture, ‘Social Campus On’ which provides collaboration, office space, and education to increase the sustainability of start-up should be expanded and more of such resources should be installed (Lee, et al., 2018).

Fifthly, seeking support for social venture in-company start-up is needed. ‘Social venture enterprise start-up support’ should be promoted so that large-sized enterprises, medium-sized enterprises, and small-sized enterprises can promote the pursuit of social purpose by an in-company start-up. Therefore, if the venture inside the company aims to pursue social purpose and creating social value, it should be preferential for selecting win-win entrepreneurship programs in the company. In the case of a social venture established and invested by a corporation, it is necessary to consider a method to recognize the second tax liability of venture capital investors as a new growth venture that is temporarily exempted.

Sixthly, the government should provide joint space for social ventures centered on a local maker's space and support collaborative projects between social ventures. Therefore, it is imperative to provide co-working space centered on the professional maker space, support collaborative projects and community activities such as local problem-solving, support prototyping and mass production of excellent ideas, and link start-up funds through a technology guarantee fund. Through these support measures, the start-up of a social venture can be initiated.

(2) Supporting social venture to enter the promising business field

The government should actively expand the entry of social venture companies by selecting promising business fields for a social venture (Korea Small Business Institute, 2018). Expanding governmental support on social ventures aiming to improve the residential environment for vulnerable groups is needed, such as with various projects’ support on a social venture to improve or supply the residential environment of vulnerable classes, such as young people and newlyweds.

In order to achieve this, the government should expand support for funding, start-up, and commercialization of a social venture pre-business team aimed at solving social problems related to the residential environment. Concurrently, the government would also establish a new support project for social venture aimed at housing welfare to enhance growth in a multifaceted way. Especially, in order to prepare for urban regeneration, the government should identify social ventures that promote various projects connected with urban renewal.

In addition, the government should actively induce social venture start-up and provide support for commercialization within the community revitalization business. In connection with the community business, we invited the idea of community problem solving to support professional consulting, R&D, design, etc. In other words, this support includes the idea of solving problems in the community, planning consulting, commercialization, R&D (IOT technology, smart grid, and so forth.) and utilization of design. The government also encourages networking activities towards collaboration between local social ventures and social economy companies.

Lastly, the government should foster social ventures in the field of arts based on creative activities, as well as provide infrastructure and opportunities for participation in various programs including culture, art, and sport. Therefore, the government should utilize public facilities for social ventures to support independence, and expand opportunities for social venture participation in operating public arts and sports programs. Social venture businesses with social service functions, such as fair travel for vulnerable groups, should be identified and cultivated when the tourism business led by the local community is selected.

3) Promoting social venture growth

(1) Fostering Financial Capital

The government should create a Fund of Funds, a 100 billion won 'Impact Investment Fund' that invests in the social ventures. It can be operated in such a way that it gives priority to losses in the Fund of Funds, induces private investment to increase private participation by giving the call option to the private investor, and provides the private investor with the right to purchase the equity investment in the fund of funds when earning occurs. To this end, the Social Value Solidarity Fund was created in January 2019. The government should extend the social enterprise preferential guarantee funds operated by the Korea Technology Finance Corporation(www.kibo.or.kr) to the ‘social venture impact guarantee system’ and strengthen the preferential guarantee, such as with a full guarantee.

(2) Strengthening R&D-Commercial Support to Enhance the Growth of Social Ventures

Given that various ministries support companies within the social economy in a scattered manner, the government should provide a package of linkages between the ministries and the social ventures. If a social enterprise turns into a social venture aiming for growth, the government should support R&D, commercialization, and marketing. The government should select excellent social ventures with high social performance and potential for growth, and implement policy on customized package support programs. The government should incentivize social ventures, as a beneficiary of the government impact fund and of social venture financing, that have a large effect on creating social value and growth for one year after the support, for them to be eligible to participate in the support project that the Department of Small and Medium Venture Enterprise provides, such as R&D and commercialization.

(3) Developing entry into domestic and overseas market

The government should expand the number of online and offline policy outlets to expand SMEs to social ventures. Specifically, it should provide preferential access to social venture's entering policy outlets that handle finished consumer goods, and support the expansion of private distribution networks. In addition, the government should promote online products such as public home shopping (ex. www.imstarts.or.kr) and support the distribution of DBs by using distribution support portal. Finally, the government should utilize broadcasting, media, and new media (ex. SNS) to induce consumer exposure and diffusion of superior social venture products.

Considering the level of export capability, the government should establish an 'export package service' to support the customized expansion overseas. The government should provide export support services differentiated according to the result of the Korea Trade-Investment Promotion Agency (KOTRA)'s export capability diagnosis (capacity strengthening, first-time export, export expansion). Also, the government should support the participation of export conferences and export marketing activities to expand social venture's export opportunities. It actively recruit social ventures that can participate in export conventions hosted by KOTRA, and to provide preferential treatment or subsidy for selection, and to favor social ventures when applying art collaboration to improve the design of the export product(Kim, et, al, 2017).

The government must also foster and support social ventures in charge of technological development and commercialization for solving social problems in developing countries in conjunction with the Korea International Cooperation Agency's (KOICA) 'Creative Technology Solution' (CTS). The government should encourage participation in the CTS project by sharing a pool of promising enterprises developed through the Small Business Venture Business Support Program, such as TIPS. The government should support the use of the residential space located in developing countries, such as Vietnam and Myanmar, among the export incubators of the Ministry of Small Venture Business established overseas (Kim, et, al, 2017).

(4) Introducing the success model of the social venture and raising positive awareness: Build a youth social venture HUB

To build a youth social venture hub, consider the following two options. Firstly, the government should operate a hub for creating and spreading success stories of a social venture by linking and concentrating resources of social venture support centering on Seongsu-dong in Seoul, where the social venture activation foundation was established. In addition, if investors who have invested in social venture investment in Sungsu-dong, Seongdong-gu, Seoul, apply for an investment fund management company, the government should consider a separate track audit as a new company. TIPS social venture accelerator cooperates with the accelerator that is active in Seongsu-dong when the start-up team is selected and provides various support services, such as networking with local governments and experts by specializing Seongsu-dong Social Campus On as a social venture growth center. To facilitate the rapid leap and growth of promising social ventures, the government should consider providing follow-up support that is favorable within the scope of the government policy, such as R&D and marketing

Secondly, the government needs to expand the social venture support function to the economic innovation center in the region where the willingness of a local government to support social venture is strong and to provide specialized support considering the local conditions. Also, the incubation centers, techno-parks, social economy middle organizations, etc., will cooperate with the Innovation Center to ensure that social ventures are constantly excavated. For excavated social ventures, the government should support successful start-up and commercialization of social venture businesses by establishing business models, monitoring, funding, and space for start-ups. To attract investment, the government should set up a meeting place between accelerator and impact investment fund management and strengthen after-start-up support, such as for sales, distribution, and public relations. In addition, the government should encourage the integration of social venture and support institutions in the Knowledge Industry Center, the buildings owned by local autonomous entities, or the venture promotion district in consultation with the local government.

III. Conclusion: Social Venture Institutionalization Plan

Social ventures belong to the category of social economic activities, however, they lack a direction connect with policy support measures of existing social enterprises, cooperatives and village enterprises. Two policy tasks are proposed as an institutionalization plan to foster the social venture ecosystem, while also reflecting the characteristics of social ventures.

It proposes a method to prepare a separate support policy by establishing a social venture category in the support policy for social enterprises. The social purpose orientation of social enterprises is clearly seen in social enterprise activities. In Europe, nonprofit organizations such as cooperatives have traditionally been active. As the unemployment problem was aggravated by the economic crisis, social and economic activities centered on non-profit organizations became more widespread. Social enterprise activities have also expanded along the same line, with social enterprises providing jobs and social services to vulnerable groups. In addition to thes two social objectives, social enterprise activities that aim for social integration and community change by solving social problems in innovative ways are receiving new attention (Lee, 2010).

The consequences of creating jobs and providing social services for vulnerable social groups also have a significant impact on the development of the community. Nevertheless, in Europe, social enterprise activities are actively undertaken to directly change communities, such as in regards to resource recycling, organic farming, and human resource development. Based on the social enterprise promotion law, social venture-type social economy enterprises aiming to solve social problems are set up as separate categories, and support programs that are different from existing social enterprise support policies, such as mid- to long-term R&D support. It is also necessary to provide brokerage support with private impact investments.

Another approach that may be considered is to define separately the social venture business development sector in venture business development. In other words, this is a way to establish social venture items under the Special Measures Act on the Promotion of Venture Businesses. At this point, the development of social enterprises of the social venture type that have knowledge- and technology-intensive characteristics beyond the job and social service provision is an important task. The essence of the social economy is not social service, but rather social innovation. Developing an institutional plan for fostering social ventures aiming to solve social problems in a socially innovative way is an urgent task.

Secondly, there is an approach to institutionalize social venture support that differs from existing social economy enterprise support. In this case, a separate law and system for social venture support is created. Considering the reality of the social venture concept definition and the absence of independent support programs, short-term policy measures are currently unknown. After social venture activity is initiated, it can be considered as a mid- and long-term development plan.

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SHORT PAPER

Creating a Draft Version of the Self-care Actions in Mental Health for Workers Inventory and Verifying its Content Validity

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ABSTRACT

Aim: The aim of this study was to create a draft version of the Self-care Actions in Mental Health for Workers Inventory in order to grasp the mental health self-care of workers at the action level, and to verify the inventory's content validity.

Methods: A literature search was conducted using the keywords "inventory", "self-care" and "original article" using the Japan Medical Abstracts Society Database. Articles on inventory development were extracted and an item pool was created based on the extracted articles. Items were included even if they were not directly related to mental health as it was assumed they could be revised. As the theoretical foundation for inventory development, the concept of self-care agency by nursing theorist, Orem, was used. In order to ensure content validity, study meetings were conducted by nursing researchers to verify whether the items, introduction and responses were difficult to understand, and whether the item contents were suitable for measuring actions based on self-care agency.

Results: An item pool consisting of 53 items was created. Of these, some items were revised or combined because they were similar to other items.

Conclusion: A 51-item draft version of the Self-care Actions in Mental Health for Workers Inventory was created, and its content validity was verified.

＜Key-words＞
action, inventory, mental health, self-care, worker

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I. Introduction

Increasing attention is being paid to the mental health of workers in Japan. The number of workers' compensation claims, including death, for mental disorders was 1,732 in 2017 (Ministry of Health, Labour and Welfare, 2018), about twice as many as 10 years ago.

Up to the present, the Ministry of Health, Labour and Welfare has indicated "guidelines for maintaining and promoting workers' mental health" (mental health guidelines) and stated the importance of self-care, in which workers themselves are aware of stress and take measures to cope with and prevent it (Ministry of Health, Labour and Welfare, 2015).

Stress researchers Lazarus and Folkman (1984) stated that coping with stress involves both cognitive and behavioral effort. Therefore, self-care requires behavior in addition to awareness. In addition, nursing theorist Orem (2001) stated that the concept of self-care agency, which is human capability and self-care power in self-care, is important. She also stated that "self-care is human endeavor, learned behavior, that has the characteristics of deliberate action" (Orem, 2001). Regarding action and behavior, philosopher Charles Taylor stated behavior with strong intention is extracted as actions (Umekawa, 2017). In other words, the actions brought by self-care agency are important for self-care. Therefore, in order to support self-care, it may be essential to pay attention to actions.

To date, multiple scales related to self-care have been developed (Honjo, 1997 & 2001; Kasuya, Funakoshi & Nagae, 2011; Ogasawara, Shiihara & Ando, 2013; Tanimura, Morimoto & Hagino, 2014). However, to the best of our knowledge, there is no inventory of self-care for workers' mental health. Taking all of this into account, the aim of this study was to create a draft version of the Self-care Actions in Mental Health for Workers Inventory (SAMHW-I) in order to grasp the mental health self-care of workers at the action level and to verify the inventory's content validity.

II. Methods

1. Creating the Item Pool

The concept of self-care agency proposed by Orem (2001) was used as the theoretical foundation for inventory development. Since cultural factors affect self-care agency (Orem, 2001), it was necessary to thoroughly investigate domestic Japanese research papers to date. Therefore, a literature search of the Japan Medical Abstracts Society Database was conducted using the keywords "inventory", "self-care" and "original article". Articles on inventory development were extracted, and an item pool was created based on the extracted articles. Items were included even if they were not directly related to mental health as it was assumed they could be revised.

2. Verifying Content Validity

In order to ensure content validity, it was necessary to investigate the face validity and logical validity of the draft inventory. Therefore, a total of five study meetings were held between 12 nursing scientists belonging to the Graduate School of A University from January 2018 to February 2019. The first study meeting focused on the clarity of the introductory text, difficult-to-understand items and response choices to confirm face validity. The second study meeting focused on verifying the logical validity, and whether the items were suitable for measuring actions taken for self-care agency.

Using Orem's (2001) following explanation of self-care agency, five frameworks that explain actions brought about by self-care agency were created: "Self-care agency is conceptualized as including the ability to attend to specific things and to understand their characteristics and the meaning of the characteristics, the ability to apprehend the need to change or regulate the things observed, the ability to acquire knowledge of appropriate courses of action for regulation, the ability to decide what to do, and the ability to act to achieve change or regulation". The five frameworks were divided as follows: [paying attention to specific matters to understand the characteristics and their significance], [understanding the need to change and regulate observed matters], [acquiring knowledge on a series of actions necessary for regulation], [making decisions on tasks to perform], and [achieving change or regulation]. Furthermore, in this study, the framework of [achieving change or regulation] was regarded as coping with stress. Then the five frameworks were collated using the items with confirmed face validity.

III. Ethical Considerations

This study was a literature review and was not targeted at people. Therefore, ethical considerations did not apply.

IV. Results

1. Creating the Item Pool

In the literature search, 481 articles were extracted, 10 of which were domestic Japanese papers related to concepts of self-care (Honjo, 1997 & 2001; Takahashi, Nakamura, Kinoshita et al., 2000; Wei, Yonemitsu, Harada et al., 2000; Igarashi, Nakano, Nakaya et al., 2006; Yamashita & Okamura, 2008; Kasuya, Funakoshi & Nagae, 2011; Ogasawara, Shiihara & Ando, 2013; Kawata, Hatashita & Kinjyo, 2014; Tanimura, Morimoto & Hagino, 2014). However, because of the lack of elements on "self-acceptance" (Orem, 2001), as mentioned in Human Capabilities and Dispositions Foundational for

Self-care Agency, one foreign journal article (Kearney & Fleischer, 1979) was also was included as a reference. The total number of items in the pool was 53.

Regarding the potential responses, the researchers discussed whether to ask about frequency (e.g., “always” or “never”) or degree (e.g., “think” or “do not think”). Since the contents of the items were related to actions, the four responses selected asked about the frequency of actions (“1. never”, “2. seldom”, “3. usually”, and “4. always”).

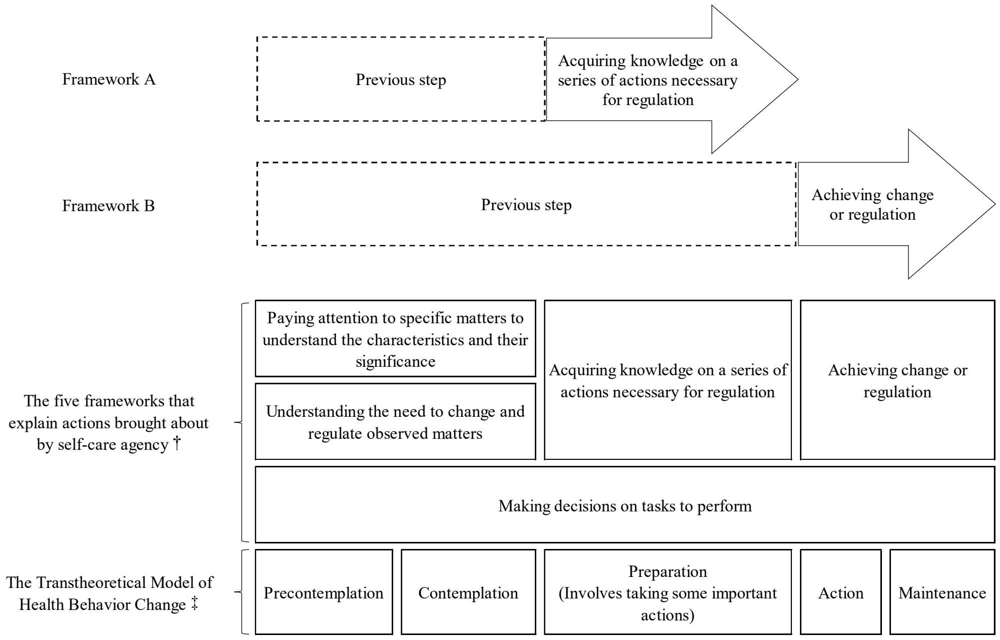
2. Face Validity

During the study meetings, we first discussed the two items of “viewing management of physical condition as a personal responsibility” and “telling yourself that it is not a big deal if you fail”. Since “viewing management of physical condition as a personal responsibility” was created as a reversal item, opinions were divided in terms of whether or not it should be a reversal item. When reviewing items in the item pool that were taken from previous references, it was confirmed that this item should be created with the intention of putting value on health. However, this item was later removed because there was another item intended for this action. As for “telling yourself that it is not a big deal if you fail”, it was pointed out that the content was similar to another item. Therefore, this item was integrated into “encouraging yourself when you are depressed”.

For the introduction, the instruction “Please put only one answer that best applies to you” was initially given, but some researchers felt this could be ambiguous for some of the items. Therefore, the instructions were changed to “Imagine the difficulties in your duties and choose only one answer that best describes you”.

3. Logical Validity

Items were collated with the five frameworks that explain actions brought about by self-care agency. During the study meetings, it was pointed out that these five frameworks might have a sequence. Prochaska and Velicer (1997), who are widely known health psychologists, presented “The Transtheoretical Model of Health Behavior Change” for changes in health behavior. This model clarifies that health behavior change goes through the stages of “precontemplation”, “contemplation”, “preparation”, “action” and “maintenance” (Prochaska & Velicer, 1997). Therefore, the five frameworks were verified using “The Transtheoretical Model of Health Behavior Change” (Figure 1).



† Created based on Orem (2001)
‡ Prochaska & Velicer (1997)

<Figure 1> Frameworks A and B of this study based on self-care agency and the transtheoretical model of health behavior change

Because instances unrelated to one's intentions cannot become actions (Umekawa, 2017), [paying attention to specific matters to understand the characteristics and their significance] and [understanding the need to change and regulate observed matters] were noted to be contents that could be a previous step to an action. These frameworks were therefore confirmed to correspond to the precontemplation and contemplation stages. The framework [acquiring knowledge on a series of actions necessary for regulation] was identified as a potential previous step to an action because knowledge for intention is necessary for an action. However, people in the preparation stage typically have experienced taking some significant action in the past year (Prochaska & Velicer, 1997). The preparation stage was therefore confirmed to include an action. Next, in instances where knowledge of a series of actions is regarded as necessary for [achieving change or regulation], the framework of [acquiring knowledge on a series of actions necessary for regulation] lasts from the preparation stage to the action stage. This framework was therefore confirmed to be the stage at which knowledge is partially obtained to initiate an action. The framework [making decisions on tasks to perform] confirmed that no actions take place without decision making and that this is the premise of the other four frameworks.

Based on the above, framework A and framework B were created for collation. Framework A was confirmed to be the action of [acquiring knowledge on a series of actions necessary for regulation] with the previous steps of [paying attention to specific matters to understand the characteristics and their significance], [understanding the need to change and regulate observed matters], and [making decisions on tasks to perform]. Framework B, meanwhile, was confirmed to be the action of [achieving change or regulation] with the precursors of [paying attention to specific matters to understand the characteristics and their significance], [understanding the need to change and regulate observed matters], [acquiring knowledge on a series of actions necessary for regulation], and [making decisions on tasks to perform] (Figure 1).

Frameworks A and B were collated with item contents. As a result, draft items 8, 12, 14, 22, 39 and 41 were matched with framework A, while all other items were matched with framework B. Ultimately, a draft inventory with 51 items was created (Table 1).

V. Discussion

1. Content Validity

The face validity reflected the points made in the study meetings and the draft inventory created was therefore considered to have guaranteed face validity. As for the logical validity, the frameworks created in the study meetings matched the collation of item contents. The draft inventory was therefore considered to have guaranteed logical validity.

A point to consider is that a large difference exists in the number of items corresponding to framework A and framework B, respectively. It is normally undesirable to have a large difference in the number of items when viewing these items as subscales. However, instances of accident compensation for death from overwork and other incidents are approximately two-fold what they were 10 years ago (Ministry of Health, Labour and Welfare, 2017). The likelihood that implementation of self-care actions in mental health for workers has reached the level of actions [with change or regulation] is therefore considered low. This draft inventory contains a substantial number of items that query the action of [achieving change or regulation]. This means that the action of [achieving change or regulation] has the potential to sensitively measure changes in an action up until the point it is implemented. The difference in the number of items corresponding to frameworks A and B is therefore not believed to have an effect on the logical validity.

In accordance with the above, a draft version of the SAMHW-I was completed and its content validity was confirmed.

2. Applications and Limitations

Self-care agency is said to be developed “in the course of day-to-day living through the spontaneous process of learning” (Orem, 2001). Therefore, the draft inventory developed in the present study is expected to be utilized as an evaluation tool for self-care education in mental health. However, statistical verification of the inventory is necessary and is currently being conducting.

<Table 1> Draft Version of the Self-care Actions in Mental Health for Workers Inventory

Framework A	
	8. Learning new information about the effects of poor mental health.
	12. Confirming whether or not information you have obtained on mental health is correct.
	14. Confirming the results of a stress check.
	22. Implementing lessons you have learned from mental health training and other sources in accordance with your lifestyle.
	39. Undergoing a stress check.
	41. Looking through information on mental health.
Framework B	
(r)	1. Adapting to your surroundings even if this takes effort.
	2. Trying to find some kind of meaning in painful experiences.
	3. Considering the cause of your sadness when you are sad.
	4. Trying not to think about depression when you are depressed.
	5. Adopting a humorous perspective to overcome difficulties.
	6. Accepting times when something painful occurred as tests by invisible forces (such as gods or fate).
	7. Consciously switching to a different way of thinking when you are bound by self-reproachful thoughts.
	9. Being able to say at what times you are prone to feeling depressed.
	10. Attending workshops on mental health.
	11. Being able to say that you like yourself.
	13. Finding medical professionals in mind who you can consult when your physical condition has deteriorated.
	15. Finding someone who will empathetically listen to your concerns.
(r)	16. Working hard at everything no matter how painful times are.
	17. Finding someone who will think of your situation and give you advice.
	18. Conveying your own intentions without holding back.
	19. Creating a relaxing environment when you are unable to sleep.
	20. Consulting those around you before you lose your emotional breathing room.
	21. Making time to spend with family and friends.
	23. Using relaxation techniques that suit you.
	24. Using personal tricks to maintain your mental stability when the need arises.
	25. Getting a sufficient amount of sleep.
(r)	26. Carrying your work-related stress over to your private life.
	27. Trying out any available new methods of maintaining your mental health.
	28. Endeavoring to eat a regular, balanced diet.
	29. Consoling yourself when you are feeling down.
	30. Using stress-relieving techniques that suit you.
	31. Transforming lessons you have learned from mental health training and other sources into actions.
	32. Consulting a medical professional when your insomnia persists.
(r)	33. Confronting difficulties without relying on those around you no matter how painful times are.
	34. Finding someone who will support you.
	35. Adjusting your work or private life when you have no emotional breathing room.
	36. Finding someone who will comfort you.
	37. Taking breaks so you do not overdo it.
	38. Finding someone with whom you can share your true feelings.
	40. Understanding your own limitations.
(r)	42. Pretending things are alright no matter how painful times are.
	43. Choosing to prioritize your health.
	44. Prioritizing what you feel is necessary.
	45. Paying attention to your emotional ups and downs.
(r)	46. Encouraging yourself when you are depressed.
	47. Refreshing yourself when you are melancholy.
	48. Analyzing what the problem is when you are confronted with difficulty.
(r)	49. Encouraging yourself not to be satisfied with the status quo no matter the situation.
(r)	50. Considering that you might fail when you are doing something difficult.
	51. Using techniques to stabilize your mood when you are feeling down.

VI. Conclusion

A draft version of the SAMHW-I was created and its content validity was verified. In the future, statistical testing of the accuracy of the inventory will verify its reliability and validity.

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Short Paper

Physiology and Pathological Characteristics of Children with Physical Disabilities;

Medical Treatment and Education

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ABSTRACT

In Special Needs education and inclusive education, it is important to consider the physiology and pathological aspects of children with disabilities. The education of children with physical disabilities is especially important, and educational support and understanding of their medical treatment should be provided. This support and understanding needs to be inclusive of physiological and pathological diseases such as Cerebral Palsy (CP), Spina Bifida (SB), and Muscular Dystrophy (MD).

Therefore, the purpose of this study is to investigate how to characterize physical disabilities based on physiology and pathology, and to discuss possible medical treatments and education within the characterizations. These findings may assist future research to develop a teaching method based on physiology and pathology.

＜Key-words＞
physiology, pathology, physical disability, cerebral palsy, medical treatment and education

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I. Introduction

According to the Ministry of Education, Culture, Sports, Science and Technology (MEXT, 2011), in addition to an ordinary school specialty, to educate children with physical disabilities, educational specialization and guidance according to the characteristics of the disability are required.

Currently, in schools that offer special needs education, understanding the psychology, physiology and pathological characteristics of children with disabilities should be made a requirement (Kohara, Kwon, Goto, & Nagahama, 2015; Nagai, 2019).

However, in Special Needs education and inclusive education, there are curriculums that consider psychological and social perspectives, but not many curricula consider the disease from a medical perspective (Nagai & Nagai, 2017; Nagai, 2019). Therefore, the purpose of this study is to investigate characterizing physical disabilities focused on physiology and pathology, and to discuss possible medical treatments and education based on these characterizations.

II. Understanding "Physical Disability" from Physiological and Pathological Characteristics: Medical Diagnosis

Physical Disability (PD) is the long-term impairment of part of a person's mobility, bodily function, physical capacity, dexterity, or stamina, resulting in a limitation of physical functioning (Cabinet Office,2018; Achieve Australia, 2019; Handicaps Welfare Association,2018). Due to the functional impairment, the person will experience an inability to perform normal movements of the body, such as the use of hands and arms, muscle control, mobility, walking, sitting, and standing.

The causes of Physical Disability are: 1) Hereditary and Congenital, and 2) Acquired: accident, infection, disease, or as an effect of a medical condition. The categories of physical disabilities are: Cerebral Palsy (CP), Spina Bifida (SB), Muscular Dystrophy (MD), Poliomyelitis, Epilepsy, spinal cord injury, Osteogenesis Imperfecta, and amputations or loss of limbs. Out of the many physical disabilities, this study focuses on Cerebral Palsy (CP), Spina Bifida (SB), and Muscular Dystrophy (MD).

1. Cerebral Palsy (CP)

As adopted by the International Consensus, Cerebral Palsy (CP) is a group of permanent disorders affecting the development of movement and posture, causing limitations in activity, and which is attributed to non-progressive disturbances occurring in the developing fetal or infant brain (Rosenbaum, Paneth et al. 2007; Gulatia & Sondhi, 2018). CP is a neurodevelopmental condition that affects muscle control, mobility, and muscular motor skills (Aisen, Kerkovich, Mast et al, 2011). National population-based studies report that the prevalence of Cerebral Palsy (CP) is about 1.8 - 2.3 cases per 1000 children (Hasegawa, Toyokawa, Ikenoue, et al. 2016; Robertson, Ricci, O'Grady et al.2017; Sellier, Platt, Andersen et al., 2016).

Classification of Cerebral Palsy are; 1) Spastic Cerebral Palsy, 2) Dyskinetic Cerebral Palsy and Athetoid Cerebral Palsy) ,3) Ataxic Cerebral Palsy, 4) Mixed Cerebra Palsy (Table1). In the CP, Spastic Cerebral Palsy is the most common type, making up 70 to 80 percent of cases. children of Spastic CP often experience exaggerated or hypertonia.

<Table 1> Classification of Cerebral Palsy

Classification	Description
Spastic Cerebral Palsy	・About 70 to 80 percent of CP ・Increased muscle tone associated with hyperactive muscle stretch reflexes (deep tendon reflexes) ・Increase in resistance to rapid muscle stretch. ・Extensor plantar responses. ・Includes 1) Spastic unilateral Cerebral Palsy 2) Spastic bilateral Cerebral Palsy
Dyskinetic Cerebral Palsy Athetoid Cerebral Palsy	・About 10 percent of CP ・Extrapyramidal cerebral palsy, ・Impairment of voluntary movement because of the presence of interfering involuntary movements ・Inappropriate co-contraction of agonist and antagonist muscles (dystonia). ・Includes 1) Choreo-athetotic Cerebral Palsy 2) Dystonic Cerebral Palsy.
Ataxic Cerebral Palsy	・About 10 percent of CP ・Dominated by signs of cerebellar dysfunction. ・Including Hypotonia, Ataxia, Dysdiadochokinesis, Dysmetria, Dysarthria and Nystagmus. ・Reflexes may be pendular, although there are often also signs of spasticity.
Mixed Cerebral Palsy	・less than 10% of all CP ・The most common Mixed Cerebral Palsy is a combination of Spastic CP and Athetoid CP.

Edit based on ICD-11(International Classification of Diseases-11th), 2018

2. Spina Bifida (SB)

Spina Bifida (SB) is occurs in about 2.7 to 3.8 per 10,000 live births, the most common group of birth defects referred to as neural tube defects (Mukherjee & Pasulka, 2017). Spina Bifida affects the backbone and, sometimes, the spinal cord (Table 2). SB occurs because of an incomplete closure of the neural tube for approximately 28 days during gestation (Wiener, Suson, Castillo et al., 2017).

<Table 2> Description of Spina Bifida

Classification	Description
Spina Bifida	・The most common congenital neural tube condition ・A pocket of skin may form, containing meninges (meningocele) or spinal cord and meninges (myelomeningocele). ・Different subtypes are distinguished according to the location of the defect. 1) Paraplegia (paralysis of lower limbs) 2) Hydrocephaly 3) Chiari malformation (result of the attached spine during life in utero) 4) Urinary and anorectal incontinence. ・The intensity of signs varies greatly with the level and extent of the lesion.

Edit based on ICD-11(International Classification of Diseases-11th), 2018

3. Muscular Dystrophy (MD)

Muscular Dystrophy (MD) is a progressive, hereditary, skeletal-muscular disease characterized by wasting, defects in muscle proteins, muscle weakness, necrosis of muscle tissue, and replacement of muscle tissue with connective and fatty tissue (International Classification of Diseases-11th, 2018; The Muscular Dystrophy Association Center at Johns Hopkins Medicine, 2019). MD is usually diagnosed in children between 3 and 6 years, early signs of the illness include a delay in walking, difficulty get up from a sitting or lying position on the floor (The Muscular Dystrophy Association (MDA), 2019).

Classification of Muscular Dystrophy are; 1) Becker Muscular Dystrophy (BMD), 2) Duchenne Muscular Dystrophy (DMD), 3) Emery-Dreifuss Muscular Dystrophy (EDMD), 4) Facioscapulohumeral Muscular Dystrophy (FSHD), 5) Limb-girdle Muscular Dystrophy (LGMD), 6) Scapuloperoneal Muscular Dystrophy, 7) Congenital Muscular Dystrophy (Table 3, International Classification of Diseases-11th, 2018).

III. Medical Treatment and Education for Physical Disability

1. Medical treatment

Children with physical disabilities have a high probability of suffering secondary disabilities and disability-related acute health problems (WHO, 2011). Actions are needed to reduce the impact of an already established disease by restoring function and reducing disease related complications. (Smith ,2000; Atijosan, Simms, Kuper, Rischewski & Lavy, 2009). According to the Cabinet Office (2018), medical treatments for children and people with physical disabilities are: 1) enhancement of appropriate health and medical services, 2) prevention and treatment of diseases including early detection, and 3) promotion of mental health and medical care measures (Table 4).

<Table 3> Classification of Muscular Dystrophy

Classification	Description
Becker Muscular Dystrophy (BMD)	・A group of genetic, degenerative diseases primarily affecting voluntary muscles. ・Similar to DMD, however allows the voluntary muscles to function better than DMD.
Duchenne Muscular Dystrophy (DMD)	・A severe X-linked myopathy caused by mutation in the dystrophin gene with symptoms appearing before the age of 6 with a rapid disease progression. ・Symptoms may include fatigue, learning difficulties (the IQ can be below 75), Muscle weakness, problems with motor skills, frequent falls and progressive difficulty walking.
Emery-Dreifuss Muscular Dystrophy (EDMD)	・A muscle disease characterised by muscular weakness and atrophy, with early contractures of the tendons and cardiac involvement (arrhythmias, cardiomyopathy).
Facioscapulohumeral Muscular Dystrophy (FSHD)	・An autosomal dominantly inherited muscle disease characterized by progressive muscle weakness with initial focal involvement of the facial, shoulder and arm muscles.
Limb-girdle Muscular Dystrophy (LGMD)	・constitutes a group of genetically determined, ・progressive disorders of muscles, in which the pelvic or shoulder girdle musculature is predominantly or primarily involved. ・May be inherited in an autosomal recessive or dominant fashion.
Scapuloperoneal Muscular Dystrophy	・Group of genetically heterogeneous myopathies characterized by progressive weakness and wasting of scapular and anterior leg muscles.
Congenital Muscular Dystrophy	・With central nervous system abnormalities ・A heterogeneous group of autosomal recessively inherited degenerative muscle disorders associated with cerebral and cerebellar dysplasia, white matter abnormalities and ocular abnormalities in some subtypes.

Edit based on ICD-11(International Classification of Diseases-11th), 2018

<Table 4> Medical treatment for children with physical disability

Medical treatment	Description
Enhancement of appropriate health and medical services	• Medical care and medical rehabilitation 1) Provision of medical care and rehabilitation medical care (Physical therapy;PT , Occupational therapy ;OT, Speech-language pathology; S/L) 2) Securing of medical rehabilitation • Health medical care services
Prevention and treatment	• Prevention and Early Detection 1) Health checkup for early detection and early treatment 2) Health guidance for pregnant women, neonates, premature infants, etc 3) Prevention of lifestyle diseases; such as cancer, diavtes and toher NCDs (noninfectious diseases) • Treatment of diseases • Dissemination of correct knowledge
Promotion of mental health and medical care measures	• Mind health promotion • Early detection and treatment of mental disorders

Edit based on Cabinet Office, 2018

2. In Education

In schools, it is important for students to respect the lives of others as well as themselves and to understand the practical necessity for general safety in daily life, including developing attitudes and abilities that allow for safe living (WHO,2011). Special Needs education and inclusive education are individualized educational focuses helping children with special needs to learn (Nicholas, 2018; Nagai, 2019).

PD children will have communication obstacles (including social mixing) and movement and control difficulties including processing and organizing information as well as spatial and perceptual impediments (Cabinet Office 2018; Aisen, Kerkovich, Mast et al., 2011; Kohara, Kwon, Goto et al., 2015). Children with severe physical disabilities may have minimal special educational needs, while those with minimal physical disability may have serious learning needs. In addition, the focus on understanding the needs of the individual and tailoring educational plans to them is crucial for children with physical disabilities (CP, BP, MD, etc.) because the intellectual abilities of individuals with these conditions can vary significantly. Therefore, along with a psychological examination, it is important to understand the medical diagnosis and to evaluate Activities of Daily Living (ADL), motor function, muscular strength, range of motion, muscle tone, reflexes, language, qualification of skills, hearing, and intelligence to meet the educational needs of children with PD (Bourke-Taylor, Cotter, Lalor & Johnson, 2018, European Commission, 2013).

There needs to be an alliance between medical treatment and educational services for children with PD throughout their schooling years as well as beyond their school. To provide enough support for students with physical disabilities, it is critical to improve the physiological and pathological expertise of teachers (Nagai, 2019; Kwon, Aoki, Yano, 2016).

Recently, inclusive schools have allied with health practitioners to advocate for educating and providing support to children within the schools (Cabinet Office, 2018). According to Bourke-Taylor (2018), Special Needs Education teachers need training and support from allied health practitioners. Physiological and pathological expertise for teachers can assist in tracking a child’s learning and support their needs. In addition, the teachers can work with the families to put in place any reasonable adjustments their children may need at school. School professionals, allied health practitioners, families, and children can work together to improve the student experience.

Specialized training can later be providing in particular areas to enhance teachers’ physiological and pathological expertise. This curriculum would be helpful to prepare teachers to educate children with physical disabilities.

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REVIEW ARTICLE

Effect of Weight Loss and Exercise Therapy on Obesity-related Respiratory Disorders

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ABSTRACT

Obesity is an established risk factor for various diseases and weight loss is important to improve these comorbidities. Although exercise is effective to suppress obesity, obesity-related respiratory disorders are likely deterrents of physical activity. Therefore, it is important to clarify the role of exercise therapy in the treatment of obesity, especially the extent to which it is valid for obesity-related respiratory disorders.

Weight loss, consequent to body fat reduction, is crucial for the improvement in obesity-related respiratory disorders. In addition, exercise therapy has been suggested to be effective in reducing dyspnea on exertion and sleep apnea or hypopnea, independent of the effects of weight loss. Furthermore, exercise therapy is expected to improve peak oxygen uptake (peak VO_2) and reduce the risk of cardiovascular disease and mortality. Irrespective of diet therapy or surgical procedures towards weight reduction, a comprehensive program combined with exercise therapy may be effective for obese patients with respiratory disorders.

＜Key-words＞
obesity-related respiratory disorders, weight loss, exercise, sleep apnea, comprehensive program

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I. Obesity and weight loss therapy

Obesity is a condition wherein the excess energy of an individual accumulates over a certain level as fat, and is defined to be BMI≧30 kg/m^2 as per the WHO (World Health Organization) standards. The prevalence of obesity has increased worldwide over the decade, which is now not only a personal health complication but also a serious socio-economic problem.

Obesity is known to be a risk factor for various diseases such as hypertension, type 2 diabetes mellitus, dyslipidemia, cardiovascular disease, orthopedic disease, and respiratory disease.

Weight loss is important to improve obesity-related comorbidities. Various methods that are employed to lose weight includes diet, exercise therapy, drug therapy, behavioral therapy, and surgical treatment. A comprehensive care involving a designated medical team is of utmost importance in mitigating the perils associated with obesity.

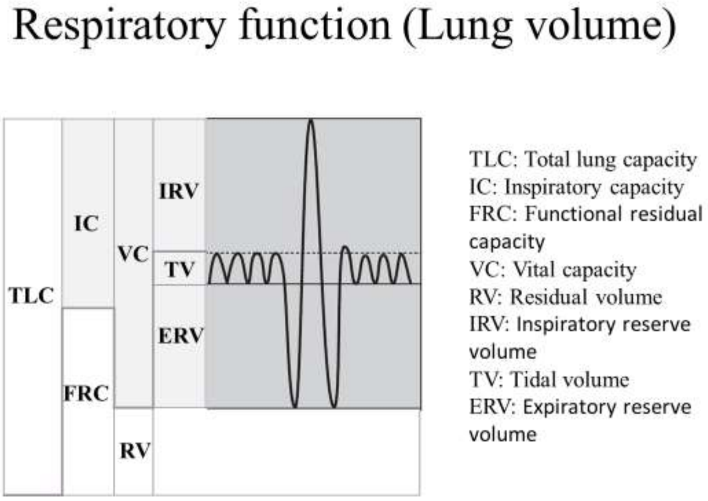
Exercise therapy not only increases energy consumption but also has several consequences such as improved exercise tolerance, better coronary circulation, augmented skeletal muscle function, enhanced insulin sensitivity, and controlled inflammation. (Shuler, Hambrecht, Schlierf, 1992. Stefanyk and Dyck, 2010. Kasapis and Thompson, 2005).

It has been reported earlier, that an increase in physical activity suppresses obesity (Koh-Banerjee, Chu, Spiegelman et al., 2003). We note, however, that obesity-related respiratory disorders such as dyspnea on exertion, hypoxemia due to obesity hypoventilation syndrome (OHS), and daytime sleepiness due to sleep apnea syndrome (SAS) are potential barriers towards the improvement in physical activity. Therefore, it is important to clarify the role of exercise therapy in the treatment of obesity, especially the extent to which it is valid for obesity-related respiratory disorders.

II. Obesity related respiratory disorders

Various respiratory disorders occur with the progression of obesity. Specifically, the effects of obesity on respiratory function have been reported to decrease lung volume, reduce respiratory compliance, increase respiratory rate, and increase airway resistance (Littleton, 2013). In particular, it is known that a decrease in expiratory reserve volume (ERV) and functional residual capacity (FRC) among lung volumes is related to the degree of obesity (Jones & Nzekwu, 2006) (Figure 1). In obese individuals, fat deposits around the ribs, around the diaphragm and in the abdominal cavity reduce respiratory thorax compliance. In severe obesity, tidal volume (TV) decreases due to decreased chest wall compliance and decreased lung volume, thereby increasing the respiratory rate which tends to be shallow with fast breathing. In addition, the airway diameter decreases due to a decrease in lung volume, indicating an increase in airway resistance (Brazzale, Pretto, Schachter, 2015).

Among respiratory diseases, OHS and obstructive sleep apnea (OSA) are closely related to obesity. As obesity progresses, fat accumulates around the airway and can directly affect the anatomy of the upper airway, increasing the likelihood of airway collapse (Jordan, McSharry, Malhotra, 2014). Hypoxia and reoxygenation by OSA (intermittent hypoxemia) and disruption of sleep are physiological stresses, which might play an important role in the development of insulin resistance and hypertensive cardiovascular disorders (Arnardottir, Mackiewicz, Gislason et al., 2009).



<Figure 1> Lung volume parameters

III. Effect of weight loss on obesity-related respiratory dysfunction

There are several studies on the effects of weight loss on respiratory function (Table 1). Surgical treatment enables massive weight loss in morbid obese patients and improves respiratory function significantly (Santana, Souza, Martins et al., 2006; Hewitt, Humerfelt, Sovik et al., 2014; Campos, Peixoto-Souza, Alves et al., 2017). Conversely, in diet therapy (calorie restriction), although the weight loss range is mild, respiratory function parameters such as ERV and FEV1 (forced expiratory volume in one second) have improved with weight loss (Lorenzo, Luca, Sasso et al.,1999; Aaron, Fergusson, Dent et al.,2004).

The correlation between the improvement in respiratory function and changes in body weight have been reported in several studies (Held, Mittnacht, Kolb et al., 2014; Takahashi, Ebihara, Kohzuki, 2017; Santana, Souza, Martins et al., 2006), suggesting that the improvement in respiratory function is influenced by the improvement of mechanical load due to weight and adiposity loss. The reduction in chest wall fat and abdominal fat might have enhanced chest wall compliance and thoracic mobility with a concomitant downward displacement of the diaphragm, possibly leading to improved respiratory function.

<Table 1>　Effect of weight loss on respiratory function in obese patients

	Authors (year)	**Characteristics of patients**	**Weight loss Intervention**	**Weight outcomes**	**Lung function Outcomes**	**Correlation**
Diet	Lorenzo et al. (1999)	16 obese patients (8 males, 8 females) Age 36 ± 11 years mean BMI 32.1 kg/m^2	Mediterranean diet 3 months Restricted hypocaloric diet ,calculated individually based on resting energy expenditure	Weight (kg) 89.70 to 82.1 Fat mass(kg) 35.92 to 29.01 Lean body mass(kg) 50.84 to 50.15 Waist/hip ratio 0.92 to 0.88	VC(L) 4.19 to 4.47 IC(ml) 3.08 to 2.99 ERV(ml) 1.16 to 1.53 FEV1(ml) 3.36 to 3.51 MVV(l/min) 123.53 to 141.21	Before the diet, a significant correlation was observed between lean body mass and VC,FEV1,PEF,ERV,MVV.
	Aaron et al. (2004)	58 obese women Age 44 ± 13 years mean BMI 43.1 kg/m^2	Calorie restriction (900kcal/day) 6 months	Weight (kg) 115.3 to 20kg reduction (17.4% reduced of their pretreatment weight)	FVC 92mL, FEV1 73mL improved for every 10% relative loss of pretreatment weight	Change FEV1 and relative weight loss (r=0.29,P=0.04) Change FVC and relative weight loss (r=0.27,P=0.057)
Exercise + Diet	Babb et al. (2011)	9 males Age 37 ± 5 years mean BMI 35 kg/m^2	Supervised 12-week diet and exercise(aerobic and resistive)weight-loss program	Weight (kg) 112 to 104 Body fat (%) 38 to 35 Waist/hip ratio 0.98 to 0.96	FVC(L) 5.03 to 5.21 FVC(%) 97 to 102 FEV1 (%) 92 to 95 EELV↑, gastric pressure↓ at Ventilatory threshold(VTh)	Change in peak expiratory gastric pressure at VTh and the change in the sum of chest,waist,and hip circumference (r=0.91,P<.01)
	Held et al. (2014)	74 asymptomatic obese subjects (32 males, 42 females) Age 42 ± 12 years mean BMI 43.4 kg/m^2	Structured weight reduction Program 1year A follow up examination was performed 4 month after start of the program.	Weight (kg) 125.6 to 99.6 Body fat (%) 45.1 to 37.8 Waist/hip ratio 0.93 to 0.90	VC(%) 98.5 to 104 FEV1 (%) 97.7 to 107.5 TLC (%) 100.7 to 101.1	Change FEV1 and change weight(r=0.31, p=0.03) Change corrected body fat and change VC (r=0.35,P=0.03),FEV1(r=0.44, p<0.01)
	Takahashi et al. (2017)	29 obese patients (14 males, 15 females) Age 42 ± 12 years mean BMI 43.8 kg/m^2	Comprehensive Obesity rehabilitation 1-3 months	Weight (kg) 118.7 to 106.7 Body fat (%) 47.8 to 44.9 Musculoskeletal mass(kg) 34.1 to 33.4	VC(L) 3.37 to 3.65 ERV(L) 0.62 to 0.93 FRC(L) 2.14 to 2.40 FEV1(L) 2.66 to 2.93 TLC(L) 4,91 to 5.15	Change in ERV and Change in BW (r=0.74, p<0.01) Change in TLC and Change in BW (r=0.68, p<0.01)
Surgical treatment	Mafort et al. (2014)	52 participants Age 18 to 65 years 40 patients completed the study mean BMI 39.1 kg/m^2	Intragastoric balloon 6 months	Weight (kg) 111 to 93.8 Body fat (%) 48.7 to 44.6 Waist circumference (cm) 113 to 105	ERV(L) 0.39 to 0.74 FRC(L) 1.56 to 2.08 FEV1(L) 2.75 to 2.88 TLC(L) 4,42 to 4.68	delta TLC and delta waist circumference (ρ= -0.34,p= 0.03) delta FRC and delta IMC (ρ=-0.39,P=0.01) ・Significant correlation between delta ERV and delta truncal,android,gynoid,total fat.
	Santana et al. (2006)	39 morbid obese BMI 40-59.9 (n=28) BMI≧60 (n=11) Age 38 ± 8 years mean BMI 52.5 kg/m^2	Bariatric surgery Spirometry was performed at baseline and 12 ± 4 months Postoperatively	Weight (kg) 137.5 to 35.8 reduction	FVC(%) 93.1 to 105.4 FEV1(%) 92.5 to 104.4	Weight loss and changes in FVC(r=0.526,p=0.001),FEV1(r=0.568,P<0.001)
	Hewitt et al. (2014)	113 morbid obese (33 males, 80 females) Age 40 ± 9 years mean BMI 47.4 kg/m^2	Bariatric surgery Spirometry was performed at baseline and 5 years Postoperatively	Weight (kg) male 158 to 38kg reduction female 133 to 42kg reduction	FVC(L): 4.59 to 4.94 (male) 3.63 to 3.84(female) FEV1(L): 3.57 to 3.81 (male) 2.91 to 3.02(female)	FEV1 improved significantly by percent weight reduction. FVC improved by percent weight reduction, male gender and high baseline BMI.
	Campos et al. (2017)	24 females with morbid obesity Age 40 ± 7 years mean BMI 47.4 kg/m^2	Bariatric surgery Spirometry was performed at baseline and 6 month Postoperatively	Weight (kg) 124.1 to 92.3 Body fat (%) 44.1 to 36.1 Lean mass(kg) 68.2 to 58.1	SVC(%) 92.2 to 99.8 ERV (L) 0.41 to 0.96 FVC (L) 3.16 to 3.45 FEV1(%) 92.8 to 98.7	delta IRV and fat mass (r=0.73) delta IRV and neck circumference (r=0.76) Delta ERV and neck circumference (r= -0.74)

VC, vital capacity; IC, inspiratory capacity; ERV, expiratory reserve volume; IRV, inspiratory reserve volume; FRC, functional residual capacity; TLC, total lung capacity; FEV1, forced expiratory volume in one second; FVC, forced vital capacity;

IV. Effect of exercise on obesity-related respiratory dysfunction

When compared with diet therapy alone (Lorenzo, Luca, Sasso et al.,1999; Aaron, Fergusson, Dent et al., 2004), exercise with diet therapy (Babb, Wyrick, Chase et al., 2011; Held, Mittnacht, Kolb et al., 2014; Takahashi, Ebihara, Kohzuki, 2017) display improvement in the parameters of respiratory function as ERV, FEV1 seems to be slightly higher in the exercise combination group.

Babb et al. observed an increase in end-expiratory lung volume during submaximal exercise in obese men after a 12-week diet and exercise program (Babb, Wyrick, Chase et al., 2011). We showed improvement of lung volume parameters after 1-3 month of comprehensive obesity rehabilitation program (Takahashi, Ebihara, Kohzuki, 2017). The exercise therapy in these studies used a combination of aerobic exercise and resistance exercises, which changed body composition through a reduction in body fat, even during short-term interventions. The effect of upper body fat distribution for lung volumes has been described previously (Collins, Hoberty, Walker et al., 1995). Given that exercise intervention significantly reduces abdominal visceral fat (Giannopoulou, Ploutz-Snyder, Carhart et al., 2005), exercise therapy is expected to be effective in improving respiratory function through changes in fat distribution.

In addition, Bernhardt et al. have shown that an aerobic exercise intervention, without weight loss, reduced dyspnea on exertion in obese women (Bernhardt et al, 2016). Since dyspnea on exertion is also a forestalling factor of physical activity in obese patients, reduction of dyspnea is considered important to the improvement of the motivation to continue the exercise therapy.

For the improvement of respiratory function, bariatric surgery that can significantly results in weight loss is considered to be the most effective. However, at the time of significant weight loss, there is a concern about the decrease in muscle mass and exercise capacity (Dereppe, Forton, Pauwen et al., 2019). Combining exercise therapy is expected to improve VO_2peak and reduce the risk of cardiovascular disease and mortality.

V. Effect of weight loss in obese patients with SAS

Table 2 lists the major randomized controlled trial (RCT)s for the effectiveness of medical weight loss for obese patients with OSA. Regardless of whether the diet was based on very low-calorie diet (VLCD) or lifestyle intervention, apnea-hypopnea index (AHI) improved with weight loss (Johansson, Neovius, Lagerros et al., 2009; Foster, Borradaile, Sanders et al, 2009).

The sleep AHEAD study (Foster, Borradaile, Sanders et al, 2009) compared intensive lifestyle intervention group to diabetes support and education group in obese patients with type 2 diabetes. The physical activity in the intensive lifestyle intervention was 175 minutes a week of moderate-intensity activity. At 1 year, body weight reduced significantly in the intervention group (-10.8kg) associated with AHI reduction (-5.4).

Tuomilehto et al. compared VLCD program with supervised lifestyle modification to routine lifestyle counseling. In the intervention group, the subjects were recommended to increase their daily physical activity and aerobic exercise. In the lifestyle intervention group, body weight was markedly reduced (-10.7kg) associated with AHI reduction (-4.0). Also, OSA was cured in 22 of 35 patients (63%) in the intervention group compared with 13 of 37 patients (35%) in the control group. (Tuomilehto, Seppä, Partinen et al., 2009)

<Table 2> Effect of medical weight loss on obese patients with OSA

Authors (year)	**Characteristics of patients**	**Weight loss Intervention**	**Weight outcomes**	**Sleep apnea Outcomes**
Foster et al. (2009)	264 participants with type 2 diabetes mild/moderate/severe OSA: 38.7%/35.2%/26.1%	RCT Intervention: Diet + Intensive lifestyle intervention(n=139) Control: Diabetes support education(n=125) 12 months	Intervention vs. Control Weight(kg) -10.8 vs. -0.6. BMI(kg/m^2) -3.8 vs. -0.2	Intervention vs. Control AHI(events/h): -5.4 vs. 4.2 Oxygen desaturation index,≧4%: -5.5 vs. 1.2
Tuomilehto et al.(2009)	72 overweight patients (BMI 28-40) with mild OSA	RCT Intervention: Very low calorie diet(VLCD) with supervised lifestyle counseling(n=35) Control: Single session of counseling with a physician and nurse(n=37) 1year	Intervention vs. Control Weight(kg) -10.7 vs. -2.4 Waist Circumference(cm) -11.6 vs. -3.0	Intervention vs. Control AHI(events/h): -4.0 vs. 0.3 All common symptoms related to OSA, and some features of 15D-QOL improved after the lifestyle intervention
Johansson et al.(2009)	63 obese men(BMI 30-40, age 30-65 years) with moderate to severe OSA (AHI≧15)	RCT Intervention: Very low energy diet(n=30) Control: usual diet(n=33) 9 weeks	Intervention vs. Control Weight(kg) -18.7 vs. 1.1 BMI(kg/m^2) -5.7 vs. 0.3	Intervention vs. Control AHI(events/h): -25 vs. -2 Oxygen desaturation episodes: -19 vs. -1 Epworth sleepiness scale: -3 vs. 1

Ⅵ. Effect of exercise on obese patients with SAS

Table 3 lists the RCTs for the effectiveness of exercise for OSA. Most studies showed a reduction in AHI in the exercise group. Moreover, peak VO_2 was increased in the exercise group in the report evaluating exercise tolerance.

<Table 3> Effect of exercise on obese patients with OSA

Authors (year)	Characteristics of patients	Study design and duration	Exercise Protocol	Weight outcomes	Lung outcomes	Sleep apnea Outcomes	Physical outcomes
Kline et al. (2011)	43 sedentary overweight/obese patients with at least moderate-severity OSA	RCT Intervention: Aerobic and resistance exercise (n=27) Control: stretching (n=16) 12weeks	Aerobic exercise Frequency:4 times/wk Intensity:60% HRR Time:0-4week: exercise dose increase gradually 5-12week:150min/wk Resistance exercise 2 days/wk. 2sets of 10-12 repetitions for 8 different exercise Supervised by trained staff.	Weight (kg) IG:105.6 to 104.7 CG: 99.3 to 98.7 Total body fat(%) IG:42.1 to 41.0 CG:40.6 to 40.8	FVC(L) IG:3.7 to 3.6 CG:3.5 to 3.6 FEV1(L) IG:3.2 to 3.1 CG:3.1 to 3.1	AHI(events/h) IG:32.2 to 24.6 CG:24.4 to 28.9 ODI(events/h) IG:24.5 to 21.5 CG:16.8 to 23.2 Stage N3 sleep(%) IG:12.8 to 13.2	
Sengul et al. (2011)	20 patients with mild to moderate OSA	RCT Intervention: Aerobic and breathing exercise (n=10) Control: (n=10) 12weeks	Aerobic exercise Frequency:3 times/wk Intensity:60-70% of maxVO$_2$ Time:45-60min Type:treadmill or bicycle Breathing exercise combined with postual exercises.	BMI(kg/m^2) IG:29.79 to 29.2 CG:28.42 to 28.28 Total body fat(%) IG:28.41 to 26.87 CG:24.84 to 25.81	FEV1(%pred) IG:104.3 to 96.6 CG:112.5 to 103.4 Pe max (cmH^{2}O) IG:122.4 to 117.4 CG:113.0 to 113.0 Pi max (cmH^{2}O) IG:91.9 to 90.2 CG:89.2 to 96.9	AHI(events/h) IG:15.19 to 11.01 CG:17.92 to 17.36	PeakVO$_2$ (mL/kg/min) IG:15.4 to 17.5 CG:16.6 to 18.4 MET (kcal/kg/h) IG:4.4 to 5.4 CG:4.8 to 5.3
Desplan et al. (2014)	22 sedentary patients with moderate to severe OSA	RCT Intervention: Inpatient rehabilitation program (n= 11) Control: Education activity session (n=11) 4weeks	Aerobic exercise Frequency:6 sessions/wk Intensity:ventiratory threshold heart rate. Time:45min/1session Type:cycle ergometer. Resistance exercise 30min/1sessiom Postual and balance exercise 15min	BMI(kg/m^2) IG:29.9 to 29.1 CG:31.3 to 31.3 Fat mass (kg) IG:30.0 to 27.8 CG:28.9 to 30.2 Waist circum ference (cm) IG:99 to 96 CG:104 to 104		AHI(events/h) IG:40.6 to 28.0 CG:39.8 to 45.4 ODI(events/h) IG:23.1 to 17.6 CG:24.9 to 30.1 Epworth sleepiness scale IG:13.6 to 8.0 CG: 8.0 to 9.4	PeakVO$_2$ (mL/kg/min) IG:21.3 to 22.9 CG:23.2 to 19.8 MET (kcal/kg/h) IG:3.6 to 4.6 CG:3.3 to 2.91 Endurance test IG:770 to 1771 CG:448 to 668
Mendelson et al. (2016)	34 patients with coronary artery disease and OSA or CSA	RCT Intervention: Aerobic exercise (n=17) Control:(n=17) 4weeks	Aerobic exercise Frequency:5days/wk Intensity:60% peakVO$_2$ Time:30min/day Type:walking(track or treadmill)	Weight(kg) IG:81.1 to 80.6 CG: 85.9 to 85.8		AHI(events/h) IG:24.8 to 17.2 CG:21.6 to 21.8 Minimum SpO$_2$ IG:86.4 to 85.0 CG:83.2 to 83.2	
Karlsen et al. (2017)	30 patients with moderate to severe OSA	RCT Intervention: High Intensity interval training(HITT) (n=13) Control:(n=15) 12weeks	HITT exercise Frequency:2 times/wk 4 × 4min of treadmill walking or running at 90-95% of maximal heart rate, Supervised by exercise physiologist	BMI:no significant between-group changes in BMI. Total body fat was reduced (～2%) in HITT group.		AHI IG:24% improve. CG: no change. Epworth sleepiness scale was improved significantly in the HITT group.	PeakVO$_2$ (mL/kg/min) IG: 28.2 to 30.2 CG:27.0 to 27.0 Breathing reserve (L/min) IG: 22.8 to 10.1 CG:36.7 to 30.9
Yang et al. (2018)	70 patients with mild to moderate OSA	RCT Intervention: Aerobic exercise (n=32) Control:(n=35) 12weeks	Aerobic exercise Frequency:3times/wk Intensity:anaerobic threshold HR Time:30min/day Type:bicycle ergometer	BMI(kg/m^2) IG:27.6 to 24.5 CG:27.1 to 26.8 Waist circum ference (cm) IG:117.3 to 115.2 CG:115.4 to 111.6		AHI(events/h) IG:20.2 to 16.4 CG:19.5 to 20.1 ODI(events/h) IG:13.0 to 11.4 CG:12.4 to 12.6 Minimum SpO$_2$ IG:79.1 to 79.9 CG:81.5 to 81.8	PeakVO$_2$ (mL/kg/min) IG:28.4 to 30.2 CG:29.5 to 29.4 VO$_2$ at AT (mL/kg/min) IG:25.3 to 28.1 CG:26.1 to 26.8
Servantes et al. (2018)	65 patients with heart failure and OSA	RCT Intervention: <1>exercise (n=17) <2>CPAP (n=15) <3>exercise+CPAP (n=15) Control: (n=18) 3months	Aerobic exercise Frequency:3sessions/wk Intensity: anaerobic threshold HR. Time:0-1month 30 min 1-3minth 45min Type:treadmill and cycle ergometer. Resistance exercise 50% to 60% of 1RM for elbow and knee extension/flexion	Weight (kg) IG: <1> 81 to 79 <2> 86 to 87 <3> 86 to 87 CG: 78 to 78		AHI(events/h) IG: <1> 28 to 18 <2> 32 to 8 <3> 25 to 10 CG: 29 to 31 N3 sleep (%Total sleep time) <1> 19 to 20 <2> 14 to 23 <3> 19 to 26 CG: 15 to 16	PeakVO$_2$ (mL/kg/min) <1> 15 to 20 <2> 14 to 15 <3> 16 to 19 CG: 15 to 14 Max HR (beats/min) <1> 108 to 121 <2> 116 to 114 <3> 111 to 132 CG: 115 to 113

FEV1, forced expiratory volume in one second; FVC, forced vital capacity; Pemax, maximal expiratory pressure; Pimax, maximal inspiratory pressure; ODI, Oxygen desaturation index; peakVO$_2$, Peak oxygen consumption; VO$_2$ at AT, oxygen consumption at anaerobic threshold; MET, metabolic equivalents

Kleine et al. randomized 43 moderate severity OSA patients in the exercise group and the stretch group and followed them up for 12 weeks. Compared to the stretch group, the exercise group showed significant AHI reduction (exercise; -7.6 vs. stretch; +4.5) and improved oxygen saturation (Kleine, Crowley, Ewing et al., 2011). These improvements are seen independently of weight loss, suggesting the effectiveness of exercise therapy for OSA improvement. In Sengul et al's RCT, exercise therapy combined with breathing exercise and aerobic exercises did not change breathing function and BMI, but significantly decreased AHI.

The detailed mechanism by which exercise reduces AHI in OSA patients has not been fully elucidated, but there are several possibilities, including changes in upper airway size and collapse, nasal resistance, lung volume alterations during sleep, and metabolic changes related to the visceral fat tissue. (Kleine, Crowley, Ewing et al., 2011)

Desplan et al. compared an inpatient rehabilitation program to a control group in OSA patients. In this rehabilitation program, a combination of aerobic exercise and resistance exercise was performed for a longer time compared to other reports. As a result, body fat mass and waist circumference were reduced significantly in the exercise group. Although the study was performed over only 4 weeks, it improved AHI to the same extent as that seen in longer duration studies. Changes in body composition and fat distribution due to intensive exercise, increased pharyngeal lumen size due to fat loss, may contribute to improving AHI.

Mendelson et al. compared 4 weeks of aerobic exercise training to a control group in OSA patients with coronary artery disease. AHI decreased significantly in the exercise group (31.1 to 20.5), in association with a greater reduction in the overnight change in leg fluid volume (Exercise: 579 to 466 vs. Control 453 to 434) and by a significantly greater increase in the overnight change in upper-airway cross sectional area in the exercise group (Mendelson, Lyons, Yadollahi et al., 2016). This study suggests that exercise therapy has further reduced nighttime fluid movement from the leg to the neck, and the accompanying dilation of the upper airway results in a decrease in AHI.

In an RCT comparing continuous positive airway pressure (CPAP) treatment with exercise training, the group using CPAP showed significant improvement in AHI, and the exercise group improved quality of life more than CPAP group (Servantes, Javaheri, Kravchychy et al., 2018). A previous study has shown improvements in CRP, insulin resistance, lipid metabolism, and blood pressure in the combination of weight loss and CPAP (Chirinos, Gurubhagavatula, Teff et al., 2014). In the treatment of OSA, it may be better to aim for weight loss comprehensively, considering the risk of complications and adherence to CPAP.

VII. Conclusion

Weight loss and body fat loss are important for the improvement in conditions of respiratory disorders associated with obesity. In addition, exercise therapy has been suggested to be effective in reducing dyspnea on exertion and sleep apnea or hypopnea independent of the effects of weight loss. Furthermore, exercise therapy has the effect of improving exercise capacity (peak VO_2). Since peak VO_2 is an independent predictor of cardiovascular risks and mortality, exercise therapy is recommended to improve life prognosis. In surgical treatment for severe obesity, it is considered that a decrease in skeletal muscle mass and a decrease in exercise capacity can be prevented by combining exercise therapy before and after bariatric surgery.

In continuing exercise therapy, it is important to maintain patient motivation to exercise. Aerobic exercise below the anaerobic threshold level allows safe exercise and less breathlessness, leading to maintenance of compliance with exercise. In obese patients with OSA and OHS, use of CPAP is expected to improve daytime sleepiness and increase physical activity. Whether it is diet therapy or surgical weight loss, a comprehensive program combined with exercise therapy may be effective for obese patients with respiratory disorders.

Risk management for other obesity-related comorbidities is also important in promoting exercise therapy for obese patients. Evaluation of cardiovascular disease risk and attention to heart failure symptoms is necessary. In patients with musculoskeletal problems, it is important to consider the type of exercise and the amount of load. In order to continue exercise therapy for a longer period, it is important to set the program according to the lifestyle of each individual.

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  > ・ Zheng Zhi, Warren Zachary, Weitlauf Amy, Fu Qiang, Zhao Huan, Swanson Amy et al. (2016) Brief Report: Evaluation of an Intelligent Learning Environment for Young Children with Autism Spectrum Disorder. *Journal of Autism and Developmental Disorders*, 46(11), 3615-3621. doi: 10.1007/s10803-016-2896-0

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  > ・ Japan Association of Geriatric Health Services Facilities(2016a) White Paper on Care in FY2016 - From the Standpoint of Geriatric Health Services Facilities-. 78, Office TM Co., Ltd.
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  > ・ Japan Association of Geriatric Health Services Facilities(2016b) White Paper on Care in FY2016 - From the Standpoint of Geriatric Health Services Facilities-. 10-13, Office TM Co., Ltd.

- Magazine name should be italic type.

  > ・ Bies RJ, Martin C & Brockner J (1993) Just laid off, but still a good citizen? Only if the process is fair. *Employees Rights and Responsibilities Journal*, 6, 227-238.

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  > ・ Han CW, Lee EJ, Iwata T, Kataoka H & Kohzuki M (2004) Development of the Korean version of Short-Form 36-Item Health Survey: health related QOL of healthy elderly people and elderly patients in Korea. *The Tohoku Journal of Experimental Medicine*, 203, 189-194. doi: 10.1620/tjem.203.189.

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