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The word ‘Human Services’ is used when someone faces social challenges for ‘help’ or ‘support’ people.

‘Human Services’ is expanding rapidly its area such as field of social welfare, medical, nursing, clinical psychology related mental care, health promotion for aging society, assist family for infant and child care, special supporting education corresponding to vocational education, education support sector corresponding to era of lifelong learning and fluidization of employment corresponding to the area of career development.

Human Services area, if its research methods are scientific, is internationally accepted and greater development is expected by collaborative research which is performed by multinational and multi-profession.

This journal aims to contribute to the progress and development of Asian Human Services.

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Human Services

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ORIGINAL ARTICLE

Midwives' Training Needs for Providing Support to Japanese Childbearing Women and Family Members

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ABSTRACT

Midwives can be important sources of support for childbearing women and their families. This study aimed to investigate midwives' training needs regarding the provision of this support type in Japan. A descriptive, observational survey study was conducted. We randomly selected 200 out of 1294 hospitals with an obstetrics department from a total of eight regions; sixty hospitals agreed to participate. An anonymous, self-administered questionnaire was distributed to midwives working in the hospitals. Descriptive statistics were used for analysis. All the participants were aware of the importance of providing support to the family of a childbearing woman in acquiring new roles within the family. Meanwhile, the majority of midwives were concerned about whether the current support met families' needs and would like to know the needs of the families, as well as the characteristics and methods of appropriate support, as part of their training. The results Highlighted that it is necessary to provide midwives with opportunities to reflect on their concept of family, share their experiences of providing support to the families with other colleagues, and learn from their colleagues' experiences.

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I. Introduction

Giving birth is an opportunity for a woman and her family members to acquire new roles within the family, and they are all required to adapt accordingly. However, even in recent years, issues related to acquiring these new roles continue to exist, such as postpartum depression and suicide among childbearing women[1], and an increasing number of child abuse cases in dysfunctional family situations[2]. To ensure the healthy growth of babies, it is necessary to provide support designed to prevent issues such as suicides of childbearing women and infant abuse.

In particular, Family members are key factors in supporting the mental health of childbearing women. People who welcome a new family member begin a process of growth and development[3]. Families face the following needs while in this process: having family members understand their new roles, adjusting roles within the family, and expanding the functions and relationships of the family. In addition, a family may experience a crisis when there is a change to its members' roles. Among families, fathers, in particular, have many opportunities to be involved in parenting. Therefore, it can be presumed that this would also impact the mental health of involved fathers in the postnatal period[4]. Paternal postnatal depression is a significant public health issue[5,6] Given fathers' increased involvement in parenting, support that focuses on the active roles of fathers is needed to help new fathers ease their stress in the early postpartum period[6]. Overcoming such a crisis and adapting to new roles within the family are also issues that a family faces while it is growing[7]. The role of midwife has an important task in health counselling and education, not only for the woman, but also within the family and this work should involve antenatal education and preparation for parenthood[8]. Moreover, A midwife is the most readily accessible specialist to families when they welcome a new member; a midwife is, in fact, expected to support family members experiencing significant changes in their roles.

It is important to support the family right from the pregnancy period, which is the preparatory period for the birth of a child. Therefore, midwives are required to inform fathers, siblings, and grandparents about their roles and the corresponding responsibilities during the pregnancies the preparatory period for a new family even before the child is born.

In the U.S., the importance of providing a comprehensive education program for the perinatal period, designed for family members to play a role throughout pregnancy, birth, and puericulture, is specified in the ten principles of family-centered maternity care[9].

Therefore, in the U.S., it is common for family members to take part in pregnancy, birth, and puericulture, and childbirth education specialists intervene when families are to acquire new roles as they welcome a new baby[9,10]. Men's participation in perinatal care is a key factor in the promotion of maternal and neonatal health[11]. The effect of the methods for training men in knowledge and attitudes related to participation in perinatal care have

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been studied[12]. Rominov et al,[13] revealed midwife recognitions and experiences of fathers engaged in perinatal services. Survey results indicated that midwives unanimously agreed that engaging fathers is part of their role and acknowledged the importance of receiving education to develop knowledge and skills about fathers[13].

However, in Japan, studies have found that midwives face a conflict in providing such support, even when the midwives recognize the importance of providing it. The conflict is caused by midwives' lack of understanding and clarity regarding appropriate methods to provide support[3][14]. Thus, it is necessary to provide midwives with opportunities to reflect on their concept of family, share their experiences of providing support to the families with other colleagues, and learn from their colleagues' experiences. The authors suggest introducing a systematic training program for midwives to support families in acquiring new roles. However, to develop a training program, the current situation of providing support, and the training needs of midwives to provide such support should first be clarified. Moreover, every family needs to receive support of a certain quality, regardless of midwives' interest in providing support.

Thus, the aim of this study was to examine midwives' training needs related to providing support to childbearing women and their family members in Japan.

Term Definitions

Supporting childbearing women and their family members in acquiring new roles within the family means providing support and assistance to the father, siblings, and grandparents of a newborn baby so that they can adapt to their new roles within the family. The term "training needs" refers to what degree midwives wish to know the following aspects: the needs of fathers, siblings, and grandparents; the characteristics of the support they need to provide; and the appropriate methods for providing such support. The term also refers to what kind of training methods are preferred by midwives.

II. The Study Methods

1. Study Design

We conducted a descriptive, observational study using a questionnaire survey.

2. Study Participants and Time Period

We randomly selected 200 hospitals out of the 1294 hospitals with an obstetrics department in the Kanto, Koshinetsu, Tohoku, and Hokkaido regions in Japan. Ultimately, 60 hospitals agreed to participate in this research. The survey form was distributed to 172 midwives in these hospitals who agreed to participate in this study.

The sample size was determined using a statistical power analysis program, G*Power3. The statistical test method used as the reference for the sample size was the $\chi 2$ test.

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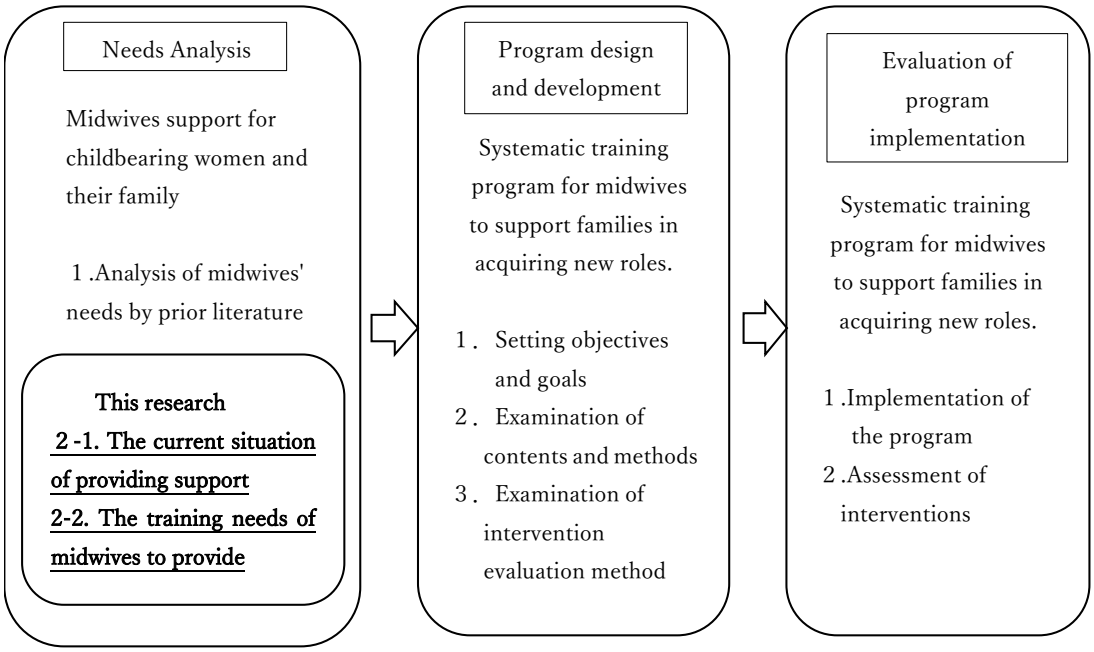
The sample size was determined to be 88 under effect size w = 0.3, α err prob = 0.05, and power (1-β err prob) = 0.8. Data were collected from February 2017 to April 2017.

3. Study Items and Methods

The positioning of this study is shown in Fig 1 . Also, the flowchart of this study Fig 2. The following attributes of participants were surveyed: age, number of years of experience as a midwife, completed midwifery education, preference for expanding support to the families of childbearing women in acquiring new roles, and preference for receiving training to provide such support. Survey items on the current situation and details and methods of such support were independently created with reference to preceding studies [3)14)]. The superficial validity of the survey items was checked by the authors and two midwifery researchers. In particular, the researchers focused on whether the items helped shed light on the training needs of midwives to support the families of childbearing women in acquiring new roles within the family. A pre-test was conducted with five midwives. The items were then amended and finalized. After all the procedures, the survey consisted of the following items: 21 items related to the current situation of providing support to the family members of childbearing women in acquiring new roles as per midwives' perception of family support, and 13 items related to the training needs. The 21 items of the survey were based on midwives' perception and understanding of family support, and the ingenuity and difficulty of family support that midwives experience on a daily basis. As the responses of the selected items were supposed to be provided as per the midwives' subjective assessment, a 4-point Likert scale was adopted for responses as follows: 1 (completely disagree), 2 (somewhat disagree), 3 (somewhat agree), and 4 (completely agree).



<Figure 1> Positioning of this study

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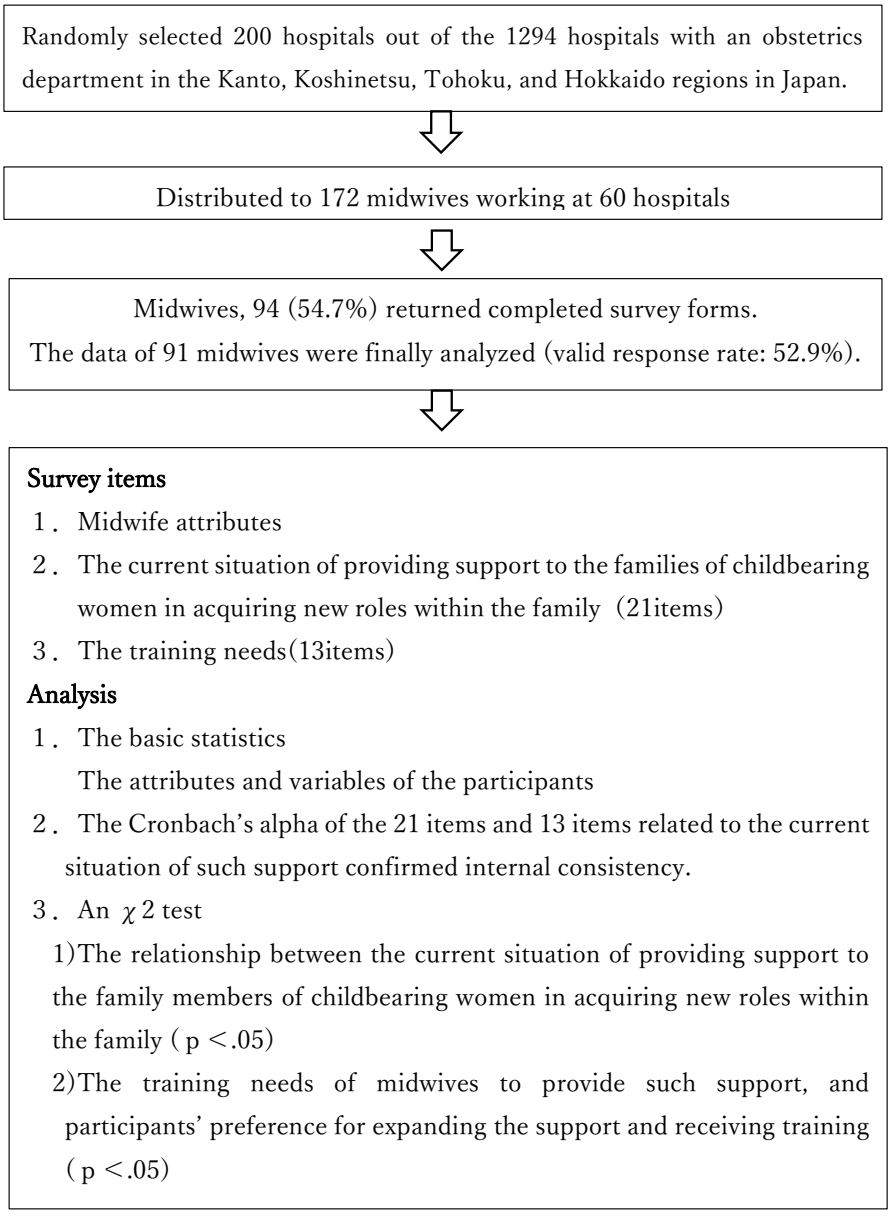
Regarding the survey methods, a letter of invitation to the study was mailed to the managers of potential participating facilities. The letter delineated the objectives and methods of the study, as well as the ethical considerations. If a facility agreed to participate in the study, copies of the letter of invitation to the study for midwives and the survey form, and return envelopes were mailed to the responsible person at the participating facility, who handed them to the midwives working there. Candidate participants were notified of the objectives, significance, methods, and ethical considerations of this study. If they agreed to participate, they were requested to complete the survey form and send it back using the return envelope.



<Figure 2> The flowchart of this study

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4. Analysis

The basic statistics of the attributes and variables of the participants were calculated. Cronbach's α was calculated for the items related to the current situation regarding providing support to the family members of childbearing women in acquiring new roles within the family, and internal consistency was then verified. Preferences for expanding support and receiving training were considered as independent variables. The 21 items related to the current situation of providing support to the families of childbearing women in acquiring new roles within the family and the 13 items related to the training needs were considered as dependent variables. The response options provided for the independent variable of preference for expanding the support were "would like to expand" and "satisfied with the current situation," while those for the independent variable of preference for receiving the training attendance were "would like to receive" and "do not mind either receiving or not receiving." For the dependent variables, responses provided on the 4-point Likert scale were classified into two groups: "agree" group and "disagree" group and were then analyzed.

An $\chi 2$ test was performed to analyze the relationship between the current situation of providing support to the family members of childbearing women in acquiring new roles within the family, the training needs of midwives to provide such support, and participants' preference for expanding the support and receiving training; the level of significance was set at or below 5%. When a rate per cell was below 5, Fisher's exact test was adopted. SPSS ver. 25.0 was used for the analysis.

5. Ethical Considerations

Study participants were midwives working at the participating hospitals. It was determined that participants were capable of making informed decisions regarding participation in this study. Written explanations of the following aspects of ethical considerations were provided to the head of the department to which participating midwives belonged, as well as to the participating midwives: the objectives and methods of the study, safety assurance, voluntary participation, the protection of privacy, anonymity, and personal information, how data would be handled following the completion of the study, and the details of external funding. Participants were deemed to have given their written consent to participate in this study upon returning the survey form. This study was approved by the Sophia University Research Ethics Review Committee (2016-71).

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III. Results

1. Outcome of Survey Form Collection

The survey form was distributed to 172 midwives working at 60 hospitals, who agreed to participate in this study. Of these midwives, 94 (54.7%) returned completed survey forms. A large number of data items for attributes and questions were missing in responses from three participants, whose data were excluded from the analysis. The data of 91 midwives were finally analyzed (valid response rate: 52.9%).

2. Participants' Attributes

The attributes of the participants are shown in Table 1. The highest percentage of participants were in their 30s (31 participants, 34.1%), followed by those in their 40s (26 participants, 28.6%). For the number of years of work experience as a midwife, the highest proportion of participants had worked as a midwife for 11–20 years (28 participants, 30.8%). Moreover, 55 (60.4%) participating midwives responded that they would like to receive formal training for providing support to the families of expectant mothers in acquiring new roles within the family, following the birth of a child, while 73 (85.9%) indicated that they would like to extend support to the families of expectant mothers.

3. Current Situation of Providing Support to the Family Members of Childbearing Women in Acquiring New Roles within the Family and the Training Needs of Midwives for Providing Such Support

Results of survey items related to the training needs of midwives for providing support to the families of childbearing women in acquiring new roles are shown in Table 2.

The Cronbach's alpha of the 21 items related to the current situation of such support confirmed internal consistency. A large proportion of participating midwives gave positive responses, including "agree" to questions related to the current situation of support to the families of expectant mothers in acquiring new roles within the family. Ninety-one participants (100%) gave a positive response to the statement, "it is important to start providing support to the families of expectant mothers in acquiring new roles within the family while the mother is still pregnant"; 90 (98.9%) did so to the statement, "an education support system is required that includes the families of expectant mothers"; 84 (92.3%) did so to the statement, "I provide support to the families of expectant mothers as necessary"; 81 (89.0%) did so to the statement, "I feel that it is necessary to provide support to the families of expectant mothers"; and 76 (83.5%) did so to the statement, "I have been providing support to the families of expectant mothers so that they can also participate in child-rearing."

Table 3 shows the results for the 13 items related to the training needs of midwives for providing support to the families of childbearing women in acquiring new roles within the family. In this case too, Cronbach's α confirmed the internal consistency.

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<Table 1> Participant attributes

		n	%
Age	20s (≤29)	25	(28)
	30s (30–39)	31	(34)
	40s (40–49)	26	(29)
	50s or older (≥50)	9	(10)
Number of years of experience as a midwife	≤5 years	21	(23)
	6–10 years	23	(25)
	11–20 years	28	(31)
	≥21 years	19	(21)
Level of midwifery education completed	Post-graduate level	2	(2)
	A dedicated college at an undergraduate level	8	(9)
	Undergraduate level	18	(20)
	Pre-degree certificate from a college	15	(17)
	Vocational certificate from a technical college	48	(53)
Situation of providing support to The family members of childbearing women in acquiring new roles within the family	Proactively providing	11	(12)
	Providing to the extent required for the job	75	(82)
	Not providing	5	(6)
Preference for expanding support to the family members of childbearing women in acquiring new roles within the family	Would like to expand	73	(80)
	Satisfied with the current situation	18	(20)
Preference for receiving training for support to the family members of expectant mothers in acquiring new roles within the family	Would like to receive	55	(60)
	Do not mind receiving or not receiving	36	(40)

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<Table 2> Current situation of providing support to the family of women in the perinatal period (n = 91)

Measurement variable		agree		disagree	
		N (%)			
Current situation of providing support to the family of childbearing women in acquiring new roles within the family Cronbach's α = 0.71					
1	It is necessary to provide support to the family members of childbearing women in acquiring new roles within the family while the mother is pregnant	91	(100)	0	(0)
2	An education support system is required that includes the family of childbearing women	90	(99)	1	(1)
3	I provide support to the family of childbearing women as necessary	84	(92)	7	(8)
4	I feel that it is necessary to provide support to the family of childbearing women	81	(89)	10	(11)
5	The current situation does not make it easy to provide support to the family members of childbearing women in acquiring new roles within the family while the mother is pregnant, although such care is important	77	(85)	14	(15)
6	I have been providing support to the family of childbearing women so that they can also participate in child-rearing	76	(84)	15	(17)
7	The methods of providing support vary depending on the perception of the involved midwife	75	(82)	16	(18)
8	I feel that sufficient support has not been given from a family perspective	74	(81)	17	(19)
9	I am concerned whether the support is meeting the needs of the families	73	(80)	18	(20)
10	Limited opportunities are available to provide family support as the duration of interaction with the families is short	72	(79)	19	(21)
11	I cannot find the time to interact with the family of childbearing women	71	(78)	20	(22)
12	The question is to what extent can health professionals be involved in the family	70	(77)	21	(23)
13	Sufficient support has not been provided to the family of childbearing women	68	(75)	23	(25)
14	I cannot provide support to siblings due to the risks of infection	64	(70)	26	(29)
15	It is difficult for a young midwife to also pay attention to family support	60	(66)	31	(34)
16	I am too busy to provide support to the family of childbearing women	55	(60)	36	(40)
17	The details of support to the family are not transparent	52	(57)	39	(43)
18	I do not understand the needs of the families	50	(55)	41	(45)
19	It is difficult to incorporate new ideas	49	(54)	42	(46)
20	I have never thought deeply about care for family	24	(26)	67	(74)
21	I cannot introduce it as doctors do not understand	16	(18)	75	(82)

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Meanwhile, a large proportion of participating midwives indicated that they were aware that it is difficult to provide such family support. 77 participants (84.6%) responded that "the current situation does not make it easy to provide support to the families of expectant mothers in acquiring new roles within the family while the mother is pregnant"; 72 (79.1%) responded that "limited opportunities are available to provide family support as the duration of interaction with families is short"; 71 (78.0%) responded that "I cannot find time to interact with the families of expectant mothers"; and 68 (74.7%) responded that "sufficient support has not been provided to the families of expectant mothers."

A large proportion of participating midwives responded that they agreed with statements as to whether midwives provide support to and address the needs of the families of expectant mothers. In total, 74 participants (81.3%) responded, "I am concerned that sufficient support has not been given from the perspective of the family"; and 73 (80.2%) responded, "I am concerned whether needs are met."

<Table 3> Details and methods of support and training methods (n = 91)

Measurement variable		agree		disagree	
		n (%)			
Training needs of midwives for providing support to the family of expectant mothers in acquiring new roles within the family. Cronbach's α = 0.91					
Training needs: Details and methods of support to the family					
1	I would like to know the methods for providing upport to expectant fathers	88	(97)	3	(3)
2	I would like to know the details of providing support to expectant fathers	88	(97)	3	(6)
3	I would like to know the methods for providing support to grandparents	87	(96)	4	(4)
4	I would like to know the needs of expectant fathers	86	(95)	5	(6)
5	I would like to know the methods for providing support to siblings and their family	85	(93)	6	(7)
6	I would like to know the details of providing support to grandparents	85	(93)	6	(7)
7	I would like to know the needs of siblings and their family	84	(92)	7	(8)
8	I would like to know the details of providing support to siblings and their family	84	(92)	7	(8)
9	I would like to know the needs of grandparents	84	(92)	7	(8)
Training needs: Training methods					
1	Attending a lecture	85	(93)	6	(7)
2	Discussing with peers	84	(92)	7	(8)
3	Developing a program	67	(74)	24	(26)
4	Self-learning online	66	(73)	25	(28)

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4. Relationships between the Current Situation of Providing Support to the Families of Childbearing Women in Acquiring New Roles within the Family, the Training Needs of Midwives for Providing Such Support, and the Participants' Preference for Expanding the Support and Receiving Specific Training

There was no significant difference in the relationship between the current situation of providing support and preference for expanding the support (would like to expand/satisfied with the current situation) and receiving specific training (would like to receive/do not mind receiving or not receiving).

Table 4 shows the relationship between the training needs of midwives to provide support to the families of childbearing women in acquiring new roles within the family and midwives' preferences for expanding support and receiving training. There was no significant difference in the relationship between the needs and the preferences for expanding support (would like to expand/satisfied with the current situation). The results for the analysis of the relationship between the midwives' needs for training to provide support to the families of expectant mothers in acquiring new roles within the family and midwives' preferences for receiving training (would like to receive/do not mind receiving or not receiving) indicated that there was a significant difference between the following statements: "I would like to know the methods of providing support to grandparents" ($\chi 2=6.392$, $p=0.022$), "I would like to know the details of providing support to grandparents"($\chi 2=5.148$, $p=0.034$), "attending a lecture" ($\chi 2=5.148$, $p=0.034$), "developing a program" ($\chi 2=4.805$, $p=0.028$), and scores were high in midwives who responded that they "would like to receive" training.

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<Table 4> Relationship between the training needs and preference for expanding support and receiving training

Training needs of midwives for providing support to the family of childbearing women in acquiring new roles within the family			Preference for expanding the support		χ^2	p-value	Preference for the training		χ^2	p-value
			Would like to expand	Satisfied with the current situation			Would like to receive	Do not mind receiving or not receiving		
Training needs: Details and methods of support to the family										
1	I would like to know the methods of providing support to expectant fathers	disagree	1	2	4.298	0.099	1	2	0.953	0.329
			-2.1	2.1			-1	1		
		agree	72	16			54	34		
			2.1	-2.1			1	-1		
2	I would like to know the details of support to expectant fathers	disagree	2	1	0.359	0.488	1	2	0.953	0.56
			-0.6	0.6			-1	1		
		agree	71	17			54	34		
			0.6	-0.6			1	-1		
3	I would like to know the methods of providing support to grandparents	disagree	2	2	2.408	0.174	0	4	6.392	0.022*
			-1.6	1.6			-2.5	2.5		
		agree	71	16			55	32		
			1.6	-1.6			2.5	-2.5		
4	I would like to know the needs of expectant fathers	disagree	4	1	0	1	3	2	0	1
			0	0			0	0		
		agree	69	17			52	34		
			0	0			0	0		
5	I would like to know the methods of providing support to siblings and their family	disagree	4	2	0.744	0.339	2	4	1.974	0.209
			-0.9	0.9			-1.4	1.4		
		agree	69	16			53	32		
			0.9	-0.9			1.4	-1.4		
6	I would like to know the details of support to grandparents	disagree	3	3	3.697	0.089	1	5	5.148	0.034*
			-1.9	1.9			-2.3	2.3		
		agree	70	15			54	31		
			1.9	-1.9			2.3	-2.3		
7	I would like to know the needs of siblings and their family	disagree	5	2	0.369	0.42	2	5	3.221	0.109
			-0.6	0.6			-1.8	1.8		
		agree	68	16			53	31		
			0.6	-0.6			1.8	-1.8		
8	I would like to know the details of support to siblings and their family	disagree	5	2	0.369	0.42	2	5	3.221	0.109
			-0.6	0.6			-1.8	1.8		
		agree	68	16			53	31		
			0.6	-0.6			1.8	-1.8		
9	I would like to know the needs of grandparents	disagree	5	2	0.369	0.42	2	5	3.221	0.109
			-0.6	0.6			-1.8	1.8		
		agree	68	16			53	31		
			0.6	-0.6			1.8	-1.8		
Training needs: Training methods										
1	Attending a lecture	disagree	4	2	0.744	0.339	1	5	5.148	0.034*
			-0.9	0.9			-2.3	2.3		
		agree	69	16			54	31		
			0.9	-0.9			2.3	-2.3		
2	Discussing with peers	disagree	5	2	0.369	0.42	3	4	0.98	0.428
			-0.6	0.6			-1	1		
		agree	68	16			52	32		
			0.6	-0.6			1	-1		
3	Developing a program	disagree	17	7	1.81	0.179	10	14	4.805	0.028*
			-1.3	1.3			-2.2	2.2		
		agree	56	11			45	22		
			1.3	-1.3			2.2	-2.2		
4	Self-learning online	disagree	18	7	1.468	0.226	13	12	1.027	0.311
			-1.2	1.2			-1	1		
		agree	55	11			42	24		
			1.2	-1.2			1	-1		

χ^2 test rate per cell is below 5; Fisher's exact test *p<.05; upper row: frequency, lower row: adjusted residual

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IV. Discussion

We found that all 91 participating midwives recognized that it is important to start providing support to the families of childbearing women in acquiring new roles within the family while the mother is pregnant, and that the midwives should provide such support on a daily basis. Antenatal education needs to be renewed and adapted to the needs of women[15]. However, an antenatal education program, focused only on women, will fail to take into account other elements that are essential for women's wellbeing, such as women's partners, families, and communities[15]. Additionally, participating midwives achieved high scores for the statements "an education support system is required that includes the families of childbearing women," and "I feel that it is necessary to provide support to the families of childbearing women." According to the results, participating midwives understand that, for women in the perinatal period to perform their role as mothers well, it is also necessary to provide support to their family. Midwives normally provide support to the family members of childbearing women in acquiring new roles within the family, possibly because support to the women's partners and other family members during the perinatal period is associated with postpartum depression in these women, according to a study[16]. Additionally, terms such as iku-men (family-centered fathers), iku-boss (family-centered boss), and iku-ji and iku-bah (family-centered grandparents) are increasingly being adopted in the community[17][18]. Additionally, the necessity of involving family members such as fathers and grandparents in childrearing is of increasing interest to the community; the role of family members is recognized as important and indispensable.

Meanwhile, at least 70% of participating midwives affirmed that it is difficult to provide such family support. This response was given in relation to the following items: "the current situation does not make it easy to provide support to the family members of childbearing women in acquiring new roles within the family while the mother is pregnant," "limited opportunities are available to provide family support as the duration of interaction with families is short," "I cannot find time to interact with the families of childbearing women," and "sufficient support has not been provided to the families of childbearing women." Midwives have limited time to directly interact with the families of childbearing women during the period from pregnancy to the postpartum phase. During this period, midwifery care is mainly provided to the mother and baby, although their family should also receive care. Possibly, the above-mentioned factors led to participating midwives affirming that they find it difficult to provide support to the families of childbearing women.

Our results show that the following are the feelings most commonly held by midwives about the support they currently provide: "I am concerned whether the needs are met," "the details of support to the family are not transparent," and "I do not understand the needs of families." Additionally, at least 90% of the participating midwives showed their

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preference as "would like to know" for all the items about the characteristics and methods of appropriate support, which are related to the training needs. In a study by Rominov et al,[14] a majority (83%) of the 106 participating midwives reported that they did not receive any formal training for working with the father. All midwives also agreed that they needed to undergo additional training for working with the fathers on their perinatal mental health and parenting skills[14]. A study that investigated the current situation of the provision of family nursing education as part of basic nursing education in Japan has found that, among participating schools, 31.6% offered subjects that focused on family nursing education, 43.2% incorporated family nursing in other subjects, and 25.3% did not offer any subjects dedicated to family nursing[19]. Another study examined the situation of family nursing education as part of continuing education for hospitals with at least 500 beds. The study found that family nursing education was provided at 32 (22.7%) out of 141 such facilities[20]. Hence, it can be assumed that systematic education in family support is not provided in continuing education for midwives. The present study highlights the necessity of systemized and specialized education regarding the characteristics of and methods to provide appropriate support to the family members of childbearing women.

There was no relationship between the current situation of providing support to the families of childbearing women in acquiring new roles, and midwives' preferences for expanding the support and receiving training. A previous study on nurses' perception of family nursing showed that the nurses recognized the importance of familial support and preferred to provide expanded support regardless of their training status[21]. Another study showed that regardless of midwives' recognition of the importance of providing support to families, they unconsciously provided support beyond their regular professional duties by applying their own experiential knowledge[22].

The relationship between the training needs of midwives to provide support to the family members of childbearing women in acquiring new roles within the family, and midwives' preferences for receiving training was analyzed, which indicated that there were significant differences among participants for the following statements: "I would like to know the methods for providing support to grandparents," "I would like to know the details of providing support to grandparents," "attending a lecture," and "developing a program." The scores for these items were high among midwives who responded that they "would like to receive" training. Thus, we can affirm that, while the current situation for providing support did not relate to the preference for expanding the support and receiving training, the need for training did relate to the preference for receiving training.

Previous studies on family nursing reported that the situation of providing support for families can be improved by gaining skills with training; though, the training does not work sufficiently when it is not conducted continuously and does not consider contextual issues[22].

Therefore, it is necessary to examine the characteristics of training that are designed to increase the interest of midwives regarding the necessity of support to the families of

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childbearing women. The training should consider contextual issues. Hori et al. [23] suggested that nurses who are aware of their own perception of family and values and have acquired practical nursing skills may perform further effective practices in family nursing. Hence, the concept of family and values held by midwives may also affect their practice when they provide perinatal support to the families of childbearing women in acquiring new roles within the family; hence, training for midwives to understand the concept of family and values may be effective. Additionally, the participants of this study were practicing midwives who considered it necessary to provide support not only to mothers but also to their families, and had the experience of providing family support in line with family needs on a daily basis. It can be said that these participants were adult learners. Knowles[24] claimed that it is necessary for adult learners to remind themselves of the importance of respecting their own personal, community, and professional experiences, and to use their own experience as a resource for learning. Possibly, midwives understand the significance of their practice by discussing their own daily experiences of and thoughts on family support with their colleagues. Findings from this study suggest that to expand support for the families of childbearing women, it is necessary to provide midwives with opportunities to reflect on their own concept of family, share experiences of being involved in tasks of providing family support with colleagues, and learn from colleagues' experiences.

Providing support to the families of expectant mothers in acquiring new roles within the family and perceptions of midwives vary depending on the structure of the hospital. Therefore, future studies need to consider this for more generalization.

The measurement items this time were limited to confirming surface validity and internal consistency. Therefore, there is a limit to generalization. It is also considered that to develop a training program, which aims to improve the competencies of midwives to provide support to the families of expectant mothers in acquiring new roles within the family, it is necessary to adopt a scale for measuring such competencies. In addition, the word "training" is comprehensive. Thus, the perceptions of the respondents may involve potential bias.

V. Conclusions

In conclusion, participating midwives were aware of the necessity of providing support to the families of childbearing women in acquiring new roles within the family. Meanwhile, they were concerned about whether the existing support being provided is meeting the needs of families. Midwives who responded that they would like to receive training to provide support to the families of childbearing women affirmed that they would like to know the needs of the families of childbearing women as well as the details and methods of support. We suggest that, to develop a training program for midwives in Japan to

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support the families of childbearing mothers in acquiring new roles within the family, it is necessary to share experiences of being involved in tasks of providing family support with colleagues, and in turn, learn from the colleagues' experiences.

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ORIGINAL ARTICLE

Mental and Physical Functions of Residents of Special Elderly Nursing Homes Providing Functional Recovery Care;

Relationships between Food Types and Mobility/Cognitive Function

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ABSTRACT

This study examined the relationships between the mental/physical functions of residents of special elderly nursing homes providing functional recovery care and food types. On comparing residents based on food types, the grades of care required were lower, and the levels of independence based on the activities of daily living (ADL) Independence Scales for Older People with Disabilities/Dementia were higher in the regular food compared with the special food and percutaneous endoscopic gastrostomy (PEG) tube feeding groups. Furthermore, the daily fluid and dietary intakes were higher, the time spent out of bed each day was longer, and the levels of in/outdoor mobility independence, rates of in/outdoor mobility aid use, and rates of being able to communicate and recognize situations were also higher in the regular food group. The results clarified the relationships among food types, mobility, and cognitive function in older people requiring care. They also demonstrated that the mental and physical functions of those consuming regular food are higher, suggesting the importance of promoting regular food consumption in nutrition care for older people.

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I. Introduction

The share of older people aged 65 or over in the total global population (aging rate) increased from 5.1% in 1950 to 8.3% in 2015, and it is estimated to reach 18.1% in 2060. The World Health Organization (WHO) published the WHO Guideline on Integrated Care for Older People (ICOPE)[1] in 2017, defining "mobility loss", "malnutrition", "visual impairment", "hearing loss", "cognitive impairment", "depressive symptoms", "urinary incontinence", "risk of falls", and "caregiver support" as 9 elements of integrated care for older people.

In 2005, when the Long-term Care Insurance Act was initially revised, Japan's care system became more prevention-focused, placing importance on improvements in motor function, nutrition, and oral function. However, reports on the outcomes of the new prevention-focused care system[2,3] revealed that older people requiring nutritional improvement still account for 30%, and malnutrition among these people remains unsolved. The effectiveness and reliability of nutritional assessment using a simple inventory (Mini Nutritional Assessment Short-Form: MNA-SF), including nutritional intervention and nutrition education, were confirmed in a previous study[4], but methods for nutritional improvement are yet to be established[5]. The authors clarified various challenges, including poor awareness of nutritional improvement among long-term care insurance service providers[6], an association between a poor nutritional status and mental/physical dysfunction in care-dependent older people[7], and lack of nutrition education for care managers[8], and identified factors responsible for the difficulty of improving malnutrition in older people. They also reported the necessity of organic collaboration based on standardized assessment and ICT use for more effective nutritional improvement[9].

The purpose of the present study was to clarify the relationships between the mental/physical functions of residents of special elderly nursing homes providing functional recovery care and food types, based on the hypothesis that food types influence the mental/physical functions of older people requiring care. Special elderly nursing homes are defined as facilities for older people requiring care to lead their daily lives with care/assistance in bathing, toileting, and eating, and assistance in other everyday activities, rehabilitation, health management, and long-term care[10]. In the present study, foods were classified into 3 types: regular food, special food, and percutaneous endoscopic gastrostomy (PEG) tube feeding. As representative mental/physical functions, the study focused on mobility and cognitive function. The authors focused on food types and mental/physical functions, as malnutrition was shown to be responsible for declines in the mental/physical functions of older people, and an association between serum albumin (Alb) levels as a nutrition indicator and food types was suggested in a previous study[7]. In this paper, "functional recovery care" refers to care that aims to enhance the mental and physical functions of care-dependent older people through 4 basic care approaches, covering <hydration>, <nutrition>, <excretion>, and <exercise>[11].

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II. Subjects and Methods

1. Study and Procedures

1) Study Design

A quantitative, descriptive study.

2) Study Period

From April 1, 2019, to March 31, 2020.

3) Subjects

A total of 1,000 residents of 14 special elderly nursing homes participating in functional recovery care workshops with one of the authors as a lecturer.

The special elderly nursing homes involved in the study were practicing the basic care approaches after learning the theory of functional recovery care through a course, consisting of 6 workshops/year that were held with one of the authors as a lecturer. Fourteen special elderly nursing homes in Aichi Prefecture participated in the 6 workshops, practiced functional recovery care for all of their residents, and reported changes in the mental/physical functions of residents as scores for the authors to examine the effects based on the idea that by involving these special elderly nursing homes, it would be possible to identify factors influencing the mental/physical functions of older people requiring care.

4) Study Items

The age, sex, care grade, and levels of independence based on the ADL Independence Scales for Older People with Disabilities (J: being able to walk outdoors, A: being able to walk indoors, B: using wheelchairs, C: being bedridden) / Dementia (I: being able to perform most ADLs, II: requiring observation, III: requiring partial assistance, IV: requiring full assistance, M: having severe symptoms and requiring specialized care) were investigated as basic attributes. Additionally, the food type (regular food, special food, PEG tube feeding) and the fluid intake/day, dietary intake/day, and time spent out of bed/day were examined as basic care parameters. Mobility independence was evaluated based on the ability to move in/outdoors and status of in/outdoor mobility aid use, while cognitive function was assessed based on the abilities to communicate, understand routines, state one's own name/age, remember recent events, and understand seasons/places.

5) Ethical Considerations

After obtaining consent from the workshop organizer and managers of the study facilities, research information was made available to the public by opting out, and the principle of voluntary participation was ensured by providing subjects with the

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opportunity to decline participation. The study was approved by the Ethics Committee of the institution some of the authors belong to (approval number: 1-06).

2. Data Collection

Data regarding the study items were extracted from those submitted in May 2019 during the workshops held with one of the authors as a lecturer.

3. Data Analysis

After simple tabulation, the relationships between food types and basic attributes, basic care parameters, mobility, and cognitive function were analyzed using the chi-square test or the Kruskal-Wallis test. Statistical analysis was performed using IBM SPSS Statistics 26.0, with the significance level set at $p<0.05$.

III. Results

1. Basic Attributes and food types (Table 1)

The mean age was 85.9±7.8. There were 227 (22.7%) males and 773 (77.3%) females. The mean care grade was 3.7±0.99. The level of independence based on the ADL Independence Scale for Older People with Disabilities was as follows: J1: 3 (0.3%), J2: 16 (1.6%), A1: 94 (9.4%), A2: 215 (21.5%), B1: 211 (21.1%), B2: 320 (32.0%), C1: 51 (5.1%), and C2: 90 (9.0%). The level of independence based on the ADL Independence Scale for Older People with Dementia was as follows: independent: 14 (1.4%), I: 40 (4.0%), IIa: 60, IIb: 140 (14.0%), IIIa: 422 (42.2%), IIIb: 92 (9.2%), IV: 179 (17.9%), and M: 53 (5.3%). The food type was regular in 775 (77.5%), special in 181 (18.1%), and PEG tube feeding in 44 (4.4%). Residents with worsening complications were excluded.

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<Table 1> Basic attributes and food types

Age			85.9±7.8
Sex	Male	227	22.7%
	Female	773	77.3%
Care grade	Currently applying	6	0.6%
	Grade 1	22	2.2%
	Grade 2	49	4.9%
	Grade 3	350	35.0%
	Grade 4	335	33.5%
	Grade 5	238	23.8%
Level of independence based on the ADL Independence Scale for Older People with Disabilities	J1	3	0.3%
	J2	16	1.6%
	A1	94	9.4%
	A2	215	21.5%
	B1	211	21.1%
	B2	320	32.0%
	C1	51	5.1%
	C2	90	9.0%
Level of independence based on the ADL Independence Scale for Older People with Dementia	Independent	14	1.4%
	Ⅰ	40	4.0%
	Ⅱa	60	6.0%
	Ⅱb	140	14.0%
	Ⅲa	422	42.2%
	Ⅲb	92	9.2%
	Ⅳ	179	17.9%
	M	53	5.3%
Food type	Regular	775	77.5%
	Special	181	18.1%
	PEG tube feeding	44	4.4%

2. Relationship between food types and basic attributes (Table 2)

The food types in each sex were as follows: regular: male: 195 (25.2%) and female: 580 (74.8%); special: male: 27 (14.9%) and female: 154 (85.1%); and PEG tube feeding: male: 5 (11.4%) and female: 39 (88.6%).

The food types at each care grade were as follows: regular: currently applying: 5 (0.6%), grade 1: 22 (2.8%), 2: 48 (6.2%), 3: 318 (41.0%), 4: 242 (31.2%), and 5: 140 (18.1%); special: currently applying: 0 (0.0%), grade 1: 0 (0.0%), 2: 1 (0.6%), 3: 31 (17.1%), 4: 76 (42.0%),

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and 5: 73 (40.3%); and PEG tube feeding: currently applying: 1 (2.3%), grade 1: 0 (0.0%), 2: 0 (0.0%), 3: 1 (2.3%), 4: 17 (38.6%), and 5: 25 (56.8%). The rate of residents requiring low grades of care was significantly higher in the regular food compared with the other groups.

The food types at each level of independence based on the ADL Independence Scale for Older People with Disabilities were as follows: regular: J1: 3 (0.4%), J2: 15 (1.9%), A1: 89 (11.5%), A2: 198 (25.5%), B1: 175 (22.6%), B2: 230 (29.7%), C1: 25 (3.2%), and C2: 40 (5.2%); special: J1: 0 (0.0%), J2: 1 (0.6%), A1: 4 (2.2%), A2: 15 (8.3%), B1: 36 (19.9%), B2: 76 (42.0%), C1: 21 (11.6%), and C2: 28 (15.5%); and PEG tube feeding: J1: 0 (0.0%), J2: 0 (0.0%), A1: 1 (2.3%), A2: 2 (4.5%), B1: 0 (0.0%), B2: 14 (31.8%), C1: 5 (11.4%), and C2: 22 (50.0%). The rate of residents with high levels of independence based on this scale was significantly higher in the regular food compared with the other groups.

The food types at each level of independence based on the ADL Independence Scale for Older People with Dementia were as follows: regular: independent: 14 (1.8%), I: 39 (5.0%), IIa: 56 (7.2%), IIb: 124 (16.0%), IIIa: 345 (44.5%), IV: 99 (12.8%), and M: 27 (3.5%); special: independent: 0 (0.0%), I: 1 (0.6%), IIa: 4 (2.2%), IIb: 16 (8.8%), IIIa: 66 (36.5%), IIIb: 16 (8.8%), IV: 63 (34.8%), and M: 15 (8.3%); and PEG tube feeding: independent: 0 (0.0%), I: 0 (0.0%), IIa: 0 (0.0%), IIb: 0 (0.0%), IIIa: 11 (25.0%), IIIb: 5 (11.4%), IV: 17 (38.6%), and M: 11 (25.0%). The rate of residents with high levels of independence based on this scale was significantly higher in the regular food compared with the other groups.

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<Table 2> Relationship between food types and basic attributes

		Food type							
		Regular		Special		PEG tube feeding			
		n	%	n	%	n	%	P-value	
Sex	Male	195	25.5%	27	14.9%	5	11.4%	0.002	**
	Female	580	74.5%	154	85.1%	39	88.6%		
Care grade	Currently applying	5	0.6%	0	0.0%	1	2.3%	<0.001	***
	Grade 1	22	2.8%	0	0.0%	0	0.0%		
	Grade 2	48	6.2%	1	0.6%	0	0.0%		
	Grade 3	318	41.0%	31	17.1%	1	2.3%		
	Grade 4	242	31.2%	76	42.0%	17	38.6%		
	Grade 5	140	18.1%	73	40.3%	25	56.8%		
Level of independence based on the ADL Independence Scale for Older People with Disabilities	J1	3	0.4%	0	0.0%	0	0.0%	<0.001	***
	J2	15	1.9%	1	0.6%	0	0.0%		
	A1	89	11.5%	4	2.2%	1	2.3%		
	A2	198	25.5%	15	8.3%	2	4.5%		
	B1	175	22.6%	36	19.9%	0	0.0%		
	B2	230	29.7%	76	42.0%	14	31.8%		
	C1	25	3.2%	21	11.6%	5	11.4%		
	C2	40	5.2%	28	15.5%	22	50.0%		
Level of independence based on the ADL Independence Scale for Older People with Dementia	Independent	14	1.8%	0	0.0%	0	0.0%	<0.001	***
	Ⅰ	39	5.0%	1	0.6%	0	0.0%		
	Ⅱa	56	7.2%	4	2.2%	0	0.0%		
	Ⅱb	124	16.0%	16	8.8%	0	0.0%		
	Ⅲa	345	44.5%	66	36.5%	11	25.0%		
	Ⅲb	71	9.2%	16	8.8%	5	11.4%		
	Ⅳ	99	12.8%	63	34.8%	17	38.6%		
	M	27	3.5%	15	8.3%	11	25.0%		

chi-square test, *: P<0.05, ** : P<0.001, ***: P<0.001

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3. Relationship between food types and basic care parameters (Table 3)

The basic care parameter values of each food-type-based group were as follows: mean fluid intake/day (mL): regular: 1,446.1±361.9, special: 1,250.8±340.0, and PEG tube feeding: 1,040.8±511.5; mean dietary intake/day (Kcal): regular: 1,414.5±245.2, special: 1,225.4±266.3, and PEG tube feeding: 990.0±268.3; and mean time spent out of bed/day (minutes): regular: 675.4±198.6, special: 533.2±242.0, and PEG tube feeding: 236.0±236.3. The daily fluid and dietary intakes were significantly higher, and the time spent out of bed each day was significantly longer in the regular food compared with the other groups.

<Table 3> Relationship between food types and basic care parameters

	Food type													
	Regular				Special				PEG tube feeding					
	n	Median	25%	75%	n	Median	25%	75%	n	Median	25%	75%	P-value	
Fluid intake/day (mL)	775	1500	1219	1650	181	1300	1000	1500	44	965	600	1398.2	<0.001	***
Dietary intake/day (Kcal)	775	1450	1303	1583	181	1250	1100	1450	44	900	800	1200	<0.001	***
Time spent out of bed/day (minutes)	775	720	600	800	181	600	360	720	44	120	60	345	<0.001	***

Kruskal Wallis test, *:P<0.05, **: P<0.01, ***: P<0.001

4. Relationships between food types and indoor mobility/indoor mobility aid use (Table 4)

The indoor mobility of each food-type-based group was as follows: regular: independent: 189 (24.4%), requiring observation: 164 (21.2%), requiring partial assistance: 166 (21.4%), requiring full assistance: 251 (32.4%), and unable to move: 5 (0.6%); special: independent: 4 (2.2%), requiring observation: 12 (6.6%), requiring partial assistance: 19 (10.5%), requiring full assistance: 145 (80.1%), and unable to move: 1 (0.6%); and PEG tube feeding: independent: 0 (0.0%), requiring observation: 2 (4.5%), requiring partial assistance: 0 (0.0%), requiring full assistance: 41 (93.2%), and unable to move: 1 (2.3%). The rate of residents who were independent, requiring observation, or requiring partial assistance to move indoors was significantly higher in the regular food compared with the other groups.

The frequency of wheelchair-use to move indoors in each food-type-based group was as follows: regular: never: 246 (31.7%), sometimes: 144 (18.6%), and always: 385 (49.7%); special: never: 8 (4.4%), sometimes: 14 (7.7%), and always: 159 (87.8%); and PEG tube feeding: never: 2 (4.5%), sometimes: 2 (4.5%), and always: 40 (90.9%). The rate of residents never or sometimes using wheelchairs to move indoors was significantly higher in the regular food compared with the other groups.

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The status of indoor mobility aid use in each food-type-based group was as follows: regular: using walkers: 168 (21.7%), using wheeled walker: 775 (100.0%), using 4-prong canes: 6 (0.8%), using T-shaped handle canes: 29 (3.7%), and requiring assistance to walk: 246 (31.7%); special: using walkers: 12 (6.6%), using wheeled walker: 181 (100.0%), using 4-prong canes: 1 (0.6%), using T-shaped handle canes: 0 (0.0%), and requiring assistance to walk: 30 (16.6%); and PEG tube feeding: using walkers: 2 (4.5%), using wheeled walker: 44 (100.0%), using 4-prong canes: 0 (0.0%), using T-shaped handle canes: 0 (0.0%), and requiring assistance to walk: 8 (18.2%). The rate of residents using walkers/T-shaped handle canes or requiring assistance to walk indoors was significantly higher in the regular food compared with the other groups.

<Table 4> Relationships between food types and indoor mobility/indoor mobility aid use

		Food type						
		Regular		Special		PEG tube feeding		
		n	%	n	%	n	%	P-value
Indoor mobility	Independent	189	24.4%	4	2.2%	0	0.0%	
	Requiring observation	164	21.2%	12	6.6%	2	4.5%	
	Partial assistance	166	21.4%	19	10.5%	0	0.0%	<0.001 ***
	Full assistance	251	32.4%	145	80.1%	41	93.2%	
	Unable to move	5	0.6%	1	0.6%	1	2.3%	
Wheelchair-use to move indoors	Never	246	31.7%	8	4.4%	2	4.5%	
	Sometimes	144	18.6%	14	7.7%	2	4.5%	<0.001 ***
	Always	385	49.7%	159	87.8%	40	90.9%	
Using walkers	Yes	168	21.7%	12	6.6%	2	4.5%	<0.001 ***
Using wheeled walker	Yes	775	100.0%	181	100.0%	44	100.0%	-
Using 4-prong canes	Yes	6	0.8%	1	0.6%	0	0.0%	0.807
Using T-shaped handle canes	Yes	29	3.7%	0	0.0%	0	0.0%	0.013 *
Requiring assistance to walk	Yes	246	31.7%	30	16.6%	8	18.2%	<0.001 ***

chi-square test, *: P<0.05, **: P<0.01, ***: P<0.001

5. Relationships between food types and outdoor mobility/outdoor mobility aid use (Table 5)

The outdoor mobility of each food-type-based group was as follows: regular: independent: 26 (3.4%), requiring observation: 77 (9.9%), requiring partial assistance: 61 (7.9%), requiring full assistance: 299 (38.6%), and unable to move: 312 (40.3%); special: independent: 0 (0.0%), requiring observation: 5 (2.8%), requiring partial assistance: 6

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(3.3%), requiring full assistance: 104 (57.5%), and unable to move: 66 (36.5%); and PEG tube feeding: independent: 0 (0.0%), requiring observation: 0 (0.0%), requiring partial assistance: 0 (0.0%), requiring full assistance: 28 (63.6%), and unable to move: 16 (36.4%). The rate of residents who were independent, requiring observation, or requiring partial assistance to move outdoors was significantly higher in the regular food compared with the other groups.

The frequency of wheelchair-use to move outdoors in each food-type-based group was as follows: regular: never: 263 (33.9%), sometimes: 67 (8.6%), and always: 445 (57.4%); special: never: 28 (15.5%), sometimes: 3 (1.7%), and always: 150 (82.9%); and PEG tube feeding: never: 11 (25.0%), sometimes: 4 (9.1%), and always: 29 (65.9%). The rate of residents never using wheelchairs to move outdoors was significantly higher in the regular food compared with the other groups.

The status of outdoor mobility aid use in each food-type-based group was as follows: regular: using walkers: 29 (23.7%), using wheeled walker: 41 (5.3%), using 4-prong canes: 4 (0.5%), and using T-shaped handle canes: 19 (2.5%): special: using walkers: 12 (6.6%), using wheeled walker: 4 (2.2%), using 4-prong canes: 1 (0.6%), and using T-shaped handle canes: 1 (0.6%); and PEG tube feeding: using walkers: 0 (0.0%), using wheeled walker: 0 (0.0%), using 4-prong canes: 0 (0.0%), and using T-shaped handle canes: 0 (0.0%). The rate of residents using walkers to walk outdoors was significantly higher in the regular food compared with the other groups.

<Table 5> Relationships between food types and outdoor mobility/outdoor mobility aid use

		Food type							
		Regular		Special		PEG tube feeding			
		n	%	n	%	n	%	P-value	
Outdoor mobility	Independent	26	3.4%	0	0.0%	0	0.0%		
	Requiring observation	77	9.9%	5	2.8%	0	0.0%		
	Partial assistance	61	7.9%	6	3.3%	0	0.0%	<0.001	***
	Full assistance	299	38.6%	104	57.5%	28	63.6%		
	Unable to move	312	40.3%	66	36.5%	16	36.4%		
Wheelchair-use to move outdoors	Never	263	33.9%	28	15.5%	11	25.0%		
	Sometimes	67	8.6%	3	1.7%	4	9.1%	<0.001	***
	Always	445	57.4%	150	82.9%	29	65.9%		
Using walkers	Yes	29	3.7%	1	0.6%	0	0.0%	0.038	*
Using wheeled walker	Yes	41	5.3%	4	2.2%	0	0.0%	0.067	
Using 4-prong canes	Yes	4	0.5%	1	0.6%	0	0.0%	0.889	
Using T-shaped handle canes	Yes	19	2.5%	1	0.6%	0	0.0%	0.162	

chi-square test, *: P<0.05, **: P<0.01, ***: P<0.001

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6. Relationships between food types and cognitive function (Table 6)

Each food-type-based group's ability to communicate was as follows: regular: always able: 501 (64.4%), sometimes able: 165 (21.3%), hardly able: 50 (6.5%), and unable: 59 (7.6%); special: always able: 49 (27.1%), sometimes able: 53 (29.3%), hardly able: 27 (14.9%), and unable: 52 (28.7%); and PEG tube feeding: always able: 2 (4.5%), sometimes able: 9 (20.5%), hardly able: 7 (15.9%), and unable: 26 (59.1%). The rate of residents who were able to communicate was significantly in the regular food compared with the other groups.

Each food-type-based group's ability to recognize situations was as follows: regular: understanding routines: always able: 362 (46.7%), stating one's own age: always able: 274 (35.4%), remembering recent events: always able: 361 (46.6%), stating one's own name: always able: 642 (82.8%), understanding seasons: always able: 335 (43.2%), and understanding places: always able: 368 (47.5%); special: understanding routines: always able: 27 (14.9%), stating one's own age: always able: 25 (13.8%), remembering recent events: always able: 25 (13.8%), stating one's own name: always able: 105 (58.0%), understanding seasons: always able: 21 (11.6%), and understanding places: always able: 30 (16.6%); and PEG tube feeding: understanding routines: always able: 2 (4.5%), stating one's own age: always able: 0 (0.0%), remembering recent events: always able: 2 (4.5%), stating one's own name: always able: 8 (18.2%), understanding seasons: always able: 1 (2.3%), and understanding places: always able: 3 (6.8%). The rate of resindents who were able to recognize situations was significantly higher in the regular food compared with the other groups.

<Table 6> Relationships between food types and cognitive function

		Food type							
		Regular		Special		PEG tube feeding			
		n	%	n	%	n	%	P-value	
Ability to communicate	Always able	501	64.6%	49	27.1%	2	4.5%		
	Sometimes able	165	21.3%	53	29.3%	9	20.5%	<0.001	***
	Hardly able	50	6.5%	27	14.9%	7	15.9%		
	Unable	59	7.6%	52	28.7%	26	59.1%		
Understanding routines	Able	362	46.7%	27	14.9%	2	4.5%	<0.001	***
Stating one's own age	Able	274	35.4%	25	13.8%	0	0%	<0.001	***
Remembering recent events	Able	361	46.6%	25	13.8%	2	4.5%	<0.001	***
Stating one's own name	Able	642	82.8%	105	58.0%	8	18.2%	<0.001	***
Understanding seasons	Able	335	43.2%	21	11.6%	1	2.3%	<0.001	***
Understanding places	Able	368	47.5%	30	16.6%	3	6.8%	<0.001	***

chi-square test, *: P<0.05, **: P<0.01, ***: P<0.001

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IV. Discussion

The 14 special elderly nursing homes involved in the present study were practicing basic care approaches after learning the theory of functional recovery care. According to data released by the Ministry of Health, Labour and Welfare in October 2019, there are 10,502 special elderly nursing homes in Japan. The number of those using these facilities is 619,600, and the mean grade of care required by them is 3.95[12]. The mean grade of care required by residents of the study facilities was 3.7±0.99, indicating that their levels of independence were relatively high. Functional recovery care to help people regain independence is based on theories and called "evidence-based care" in Japan. When care fees were revised in FY2021, additional fees for systems to promote evidence-based care were newly defined, and facilities providing effective functional recovery care for users to regain independence began to receive remuneration[13]. The present study clarified the relationships between food types and basic attributes, basic care parameters, mobility, and cognitive function in residents of facilities practicing these basic care approaches.

On analyzing the relationships between food types and basic attributes, the grades of care required were lower, and the levels of independence based on the ADL Independence Scales for Older People with Disabilities/Dementia were higher in the regular food compared with the other groups, demonstrating that the mental and physical functions of those consuming regular food are higher. Furthermore, on analyzing the relationships between food types and basic care parameters, the daily fluid and dietary intakes were higher, and the time spent out of bed each day was longer in the regular food group, attributing the higher mental and physical functions of residents consuming regular food to the basic care approaches. Concerning the approaches, Takeuchi noted: "There are 4 basic approaches to care for older people. By appropriately performing these approaches, it is possible to help these people regain independence in most activities of daily living"[11]. As for the relationships between food types and ADL independence, a previous study examined factors influencing the feasibility of returning home as a goal of health service facilities for the elderly, and reported that the energy intake was the most influencing factor. Specifically, a daily energy intake of 1,400 Kcal or higher, regular food consumption, and independence in nocturnal excretion were shown to contribute to the feasibility of returning home[14]. In another study comparing support for residents of health service facilities for the elderly to return home between groups achieving and not achieving this goal, the energy intake, time spent out of bed, and nocturnal urinary incontinence rate strongly influenced the feasibility of returning home, highlighting the importance of nutritional support for functional recovery[15]. Furthermore, in a study analyzing factors contributing to independence in excretion among residents of special elderly nursing homes providing functional recovery care, there was a strong correlation between food types and such independence[16].

On analyzing the relationships between food types and mobility in the present study,

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both the level of in/outdoor mobility independence and rate of in/outdoor mobility aid use were higher in the regular food compared with the other groups. Similarly, on analyzing the relationships between food types and cognitive function, the rate of residents who were able to communicate and recognize situations was higher in the regular food group. Thus, the mobility and cognitive function of those consuming regular food were also higher. In a study conducted by one of the authors to examine the mobility and cognitive function of older people, serum albumin (Alb) levels influenced <walking in/outdoors>, <ascending/descending stairs>, <memory>, <orientation>, and <judgment> in older people living in residences for the elderly[17]. Alb levels also have a strong positive correlation with food types[7]. Similarly to these previous studies, the present study also clarified the relationships among food types, mobility, and cognitive function. It was confirmed that regular food consumption and a favorable nutritional status are positive factors for the mobility and cognitive function of older people requiring care. The hypothesis of the present study was proven correct, as the regular food group's nutritional status, such as energy intake, was maintained/improved, contributing to the maintenance/improvement of their mental/physical function. The basic care approaches covering <hydration>, <nutrition>, <excretion>, and <activity>, which had also been effective in care to improve dementia symptoms in a previous study[18], were shown to be necessary to maintain/improve cognitive function.

On comparing the regular food, special food, and PEG tube feeding groups, the care grade was lower, and the levels of independence based on the ADL Independence Scale for Older People with Disabilities/Dementia were higher in the regular food group. Furthermore, the daily fluid and dietary intakes were higher, the time spent out of bed each day was longer, and the levels of in/outdoor mobility independence, rates of in/outdoor mobility aid use, and rates of being able to communicate and recognize situations were also higher in this group. The results of the present study clarified the relationships among food types, mobility, and cognitive function in older people requiring care. They also demonstrated that the mental and physical functions of those consuming regular food are higher as a result of maintaining favorable nutritional conditions, suggesting the importance of promoting regular food consumption in nutrition care for older people.

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ORIGINAL ARTICLE

Caring in the Nursing Practice of Mid-Career Generalist Nurses at an Acute Regional Support Hospital

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ABSTRACT

Aim and Objectives: This study aimed to elucidate the current state of caring in nursing practice in Japan by mid-career generalist nurses following the implementation of a community-based integrated care system at an acute regional support hospital.
Background: With the promotion of functional specialization of medical care throughout Japan, the mean length of hospital stay at acute regional support hospitals is decreasing. Understanding the current state of caring (consideration and concern) for patients by mid-career generalist nurses who promote nursing practice to discharge or transfer patients in short-term hospitalizations is important as it will help determine the impact on caring in Japan.
Design: Qualitative descriptive study
Methods: We conducted semi-structured interviews with six mid-career generalist nurses working at acute care hospitals in Japan. Narratives about caring (consideration and concern) for patients were recorded verbatim and were qualitatively analyzed using a qualitative inductive approach.
Results: We determined five categories of caring (consideration and concern) by mid-career generalist nurses in Japanese acute care hospitals: respect for individual patients and protection of their safety, accurate observation of symptoms, working on the strengths of the patient, working on the strengths of the family, and having a good understanding of the role of an acute care hospital nurse.
Conclusions: Assuming that respect for patients and the protection of their safety are the basis for mid-career generalist nurses at acute care hospitals, we found that with a good understanding of the role of acute care hospitals, mid-career generalist nurses have been entrusted with intervention for families and nursing care after discharge. We also found that concern for each terminal phase patient arises during the course of care, which is difficult to share. Caring (consideration and concern), which is the core of nursing care, arises through situations and relationships. In the event of hospital transfers or transitions to home care from short-term hospital stays, sharing information with the local individual in charge is an issue, and the continuity of caring in nursing practice should be examined from the perspective of the patients' and nurses' satisfaction.

<Key-words>
Mid-career generalist nurse, caring, acute regional support hospital,
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I. Introduction

Caring in nursing was first investigated by Nightingale[1], followed by Leininger[2] in the 1970s, and then by Watson[3], Benner[4], and Roach[5] in the 1980s and thereafter. However, while the concept is still considered as the basis of nursing care, it is said to be diverse and complicated[6]. In Japan, a concept analysis of care/caring was conducted by Misao et al. in 1996[7]. In 2004, Gregg et al. established 12 categories as values of clinical nursing practices[8]. More recent research on caring includes research on caring specific to nursing care in specialized fields[9], and theoretical research[10]. However, very limited research has been conducted on the nursing practice of caring by mid-career generalist nurses at acute care hospitals.

In Japan, the population of individuals aged ≥65 years is expected to increase to 35.3% by 2040[11]. A community-based integrated care system was implemented in 2014[12] with the aim of being established by 2025. Simultaneously, functional specialization of medical care provided by hospitals has been promoted, and patients who have completed acute-phase treatment are being discharged early. As a result, the length of hospital stay in general sickbeds is decreasing, and the mean length of hospital stay is now 16 days[13]. In particular, at acute regional support hospitals, the mean length of hospital stay has been reduced to 10 days, similar to that in other advanced countries. Nurses at acute care hospitals have shifted from caring for a single patient over a relatively long period from the acute phase through the convalescent phase to providing precise acute-phase medical care for patients who are admitted to and discharged from hospitals on a daily basis. They also deal with transfers and discharges earlier. These changes in the medical system associated with such social changes also affect nursing care at acute care hospitals, and we believe that aspects of caring provided by the nurses, such as consideration and concern, are also changing. In this study, caring refers to how nurses show consideration and concern to patients in their nursing practice. Generalist nurses are the most likely to show such caring due to their high level of patient contact. According to Benner[4], mid-career nurses are best able to reflect on and report on their own nursing practices.

Research on the practices of mid-career generalist nurses at acute care hospitals has led to the elucidation of independent judgment[14], factors related to situations involving nursing practices that consider at-home care by general ward nurses at regional medical care support hospitals[15,16], and life support services provided by mid-career generalist nurses at acute care hospitals[17]. These studies have elucidated the ability of mid-career generalist nurses to implement discharge support and the actual state of life support. However, there are few comprehensive descriptions of caring by mid-career generalist nurses at acute care hospitals.

Therefore, in this study, we examined the current state of caring (consideration and concern) by mid-career generalist nurses at acute care hospitals. Verbalizing and visualizing caring in nursing practice by mid-career generalist nurses at acute care

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regional support hospitals is also important in terms of conveying caring in nursing practice to young nurses and in basic nursing education.

II. Objectives

This study aimed to elucidate the current state of community-based integrated care systems of caring (consideration and care) by mid-career generalist nurses at acute care hospitals in Japan.

III. Methods

1. Study Design

Qualitative descriptive study (survey via a semi-structured interview)

2. Study Period

From August to September 2016

3. Participants

Among mid-career generalist nurses working at Japanese acute care hospitals, we included six nurses who were referred by the nursing department and who were able to talk about their consideration and concerns toward patients. The inclusion criteria were as follows at the time of obtaining consent: ① mid-career nurses with at least 5 years of clinical experience, ② nurses working for at least 6 months in the acute internal medicine ward, ③ nurses who directly care for patients, ④ nurses who can talk about their consideration and concern for patients in nursing practice, and nurses who were able to provide written consent in person of their own free will upon fully understanding the study after receiving a thorough explanation about participation.

The specific procedure was to contact the head of the nursing department of the acute care community hospital, explain the research plan, obtain approval from the hospital's ethics committee, and then, in cooperation with the head of the education department, post the recruitment posters for research participants at the staff service entrance and in the wards. Following this, we conducted a briefing session for nurses who had been introduced to the study by the nursing department, explained the research cooperation to them, and asked those who were willing to participate to return the consent form by mail.

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4. Data collection methods

1) Interview method

Semi-structured interviews were conducted twice for each participant. The interview content was recorded with the approval of the participants. The study collaborators were requested to not talk about caring. This was conveyed to the participants by using expressions such as “consideration” and “concern” so that the nurses could respond without confusion because there is presently no set definition of “caring.” For these interviews, we used the interview guide shown in Table 1.

<Table 1> Interview guide

1. Please talk about your practices regarding consideration and concern for the patient.
2. How does such consideration and concern begin?

2) Information of the participants

We recorded basic information about the nurses, including age, sex, last specialized school, number of years of clinical experience, number of years of experience in the acute internal medicine ward, information about preceptorship experience, and student guidance experience.

5. Analytical methods

The interviews were recorded, and verbatim records were created, which were then qualitatively analyzed by an inductive approach. 1) Regarding consideration and concern for patients that the nurses talked about, codes were created by open coding each unity of meaning[18], such that the meanings could be understood from the context alone. 2) We established common codes by focused coding[18] and extracted final codes, subcategories, and categories. 3) When naming the subcategories and categories, we conducted the analysis after repeatedly investigating names while returning to the codes and data. 4) The analysis of the verbatim records of all study participants was performed in the order of 1) - 3).

6. Ethical considerations

The study was conducted with the approval of the ethical review board of Tokyo Women’s Medical University (approval number: 3962). Participation in this study was voluntarily, and adequate written and verbal explanations were given to ensure that there would be no disadvantage if the participants did not cooperate in the study and that their anonymity would be ensured. The study was conducted after obtaining written consent from the study collaborators of their own free will.

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IV. Results

1. Basic attributes (Table 2)

All the participants were women. Their mean age was 35.8 ± 5.9 years (26–46 years). The mean number of years of nursing experience was 12.5 ± 4.8 years (6–19 years). The mean number of years of experience working in the current ward was 3 ± 0.4 years (2.4–4 years). The last specialized school attended was a junior college of nursing for one participant, a 3-year course at a nursing school for three participants, and a 2-year course at a nursing school for two participants. In the ward, one individual was in charge of new nurse education and conducted student guidance as a team leader. The duration of the first interview was 57–62 min (Avg, 59.5 ± 1.8 min) and of the second interview was 55–62 min (Avg, 55.8 ± 5.4 min). The characteristics and interview durations of the participants are presented in Table 2.

<Table 2> Basic attributes

No.	Age	No. of years of experience	No. of years of experience in the present ward	Last specialized school	Interview duration 1st (min)	Interview duration 2nd (min)
A	38	17	3	2-year course at nursing school	62	62
B	46	19	3	3-year nursing school	59	56
C	26	6	4	3-year nursing school	62	45
D	36	7	3	3-year nursing school	58	57
E	36	15	3	2-year nursing school	59	60
F	33	11	2.4	Junior college of nursing	57	55
Avg.	35.8 ± 5.9	12.5 ± 4.8	3.0 ± 0.4		59.5 ± 1.8	55.8 ± 5.4

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<Table 3> Caring by mid-career nurses at an acute regional support hospital

Category	Subcategory	Final code
Respect for individual patients and protection of their safety	Creation of a sense of security and a relationship of trust	Place a sense of relief and trust into greetings Have interest in and be thoughtful toward the patient
	Protection of the patient's privacy, safety, and freedom	Protect the patient's privacy Protect the patient's safety and freedom as a person
	Care taking into account the patient's thoughts and feelings	Share feelings and give peace of mind Care taking into account the patient's intentions and preferences
Accurate observation of symptoms	Careful observation and understanding of the patient's symptoms and complaints	Observe the patient's condition regularly Look at patient's reactions well and respond Make judgments after carefully listening to the symptoms and complaints Create conditions wherein it is easy for the patient to speak
	Repeated observation and comparative examination	Repeat observations until satisfied with results and compare them with the normal state Know the patient's situation without relying only on nursing records
	Observe the patient's strengths through care	Observe the need for care at the bedside, and make preparations Have patients move during care to observe their physical and mental state
Working on the strengths of the patient	Provide the nursing care required for the level of the patient's health Aim to look toward recovery	Provide the nursing care required for each individual patient with different health levels Provide intervention at the timing suited to the patient Convey prospects of illness and treatment and support the will to want to get better Create an environment with the patient's lifestyle in mind
	Create an atmosphere in which time can be spent in a pleasant manner	Improve symptoms that cause distress Make an inpatient environment where one can spend time in a pleasant manner Have time to enable patient satisfaction and reassurance
	Create a plan that enables patients to display their abilities	Create a schedule so that patients can display their abilities Create plans so that patients can display their abilities
	Foster the ability of self-care	Listen to their thoughts about their lifestyle Talk with patients to help them adopt treatment into their lifestyle Teach patients about self-care suited to their symptoms and lifestyle Help patients visualize self-care following discharge
	Intervention for individual needs via team collaboration	Negotiate with doctors to improve the patient's level of satisfaction Revise care and continue nursing care through sharing information within the team Expand the patient's possibilities through team cooperation Plan emotional control through nursing team collaboration
Working on the strengths of the family	Draw on the family's ability to care	Listen to the family's intentions, sense family fatigue, obtain family cooperation, and help the family imagine the patient's lifestyle
	Convey care methods to the family	Inform the family of care that only they can provide and perform intervention so that the family can provide care
Understanding the role of acute care hospital nurses well	Provide care required by acute care hospital nurses	Entrust family intervention to post-discharge nursing care Concern for each individual terminal phase patient arises during the course of care and is difficult to share

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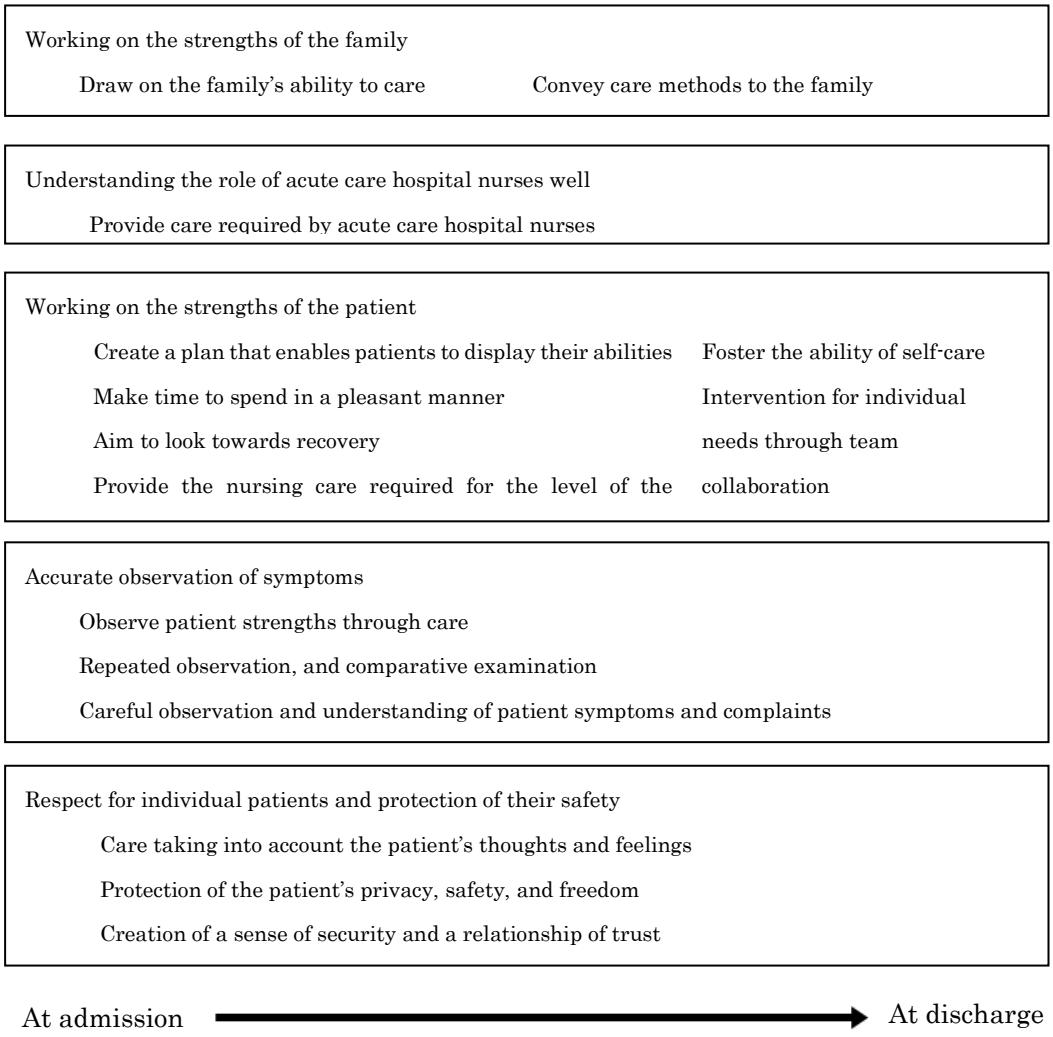
2. Caring (consideration and concern) by mid-career generalist nurses in acute regional medical care support hospitals

The details of caring (consideration and concern) by mid-career generalist nurses are presented in Table 3 and Figure 1. There were five categories, 15 subcategories, 40 final codes, and 143 codes. In the description of the results given below, categories are presented in bold, subcategories in bold italics, and final codes in italics. The statements of the participants are presented with the individual indicated as A–F at the end of the sentence. The researchers verified that there was no discrepancy between the English translation and Japanese interview to confirm the validity. The codes were given a number and then returned to the original data to confirm that there was no discrepancy in meaning. The categories included **respect for individual patients and protection of their safety**, **accurate observation of symptoms**, **working on the strengths of the patient**, **working on the strengths of the family**, and **understanding the role of acute care hospital nurses well.**



<Figure 1> The state of caring by acute care hospital nurses throughout hospitalization

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1) Respect for individual patients and protection of their safety

Respect for individual patients and protection of their safety involves working to provide peace of mind through inpatient treatment by approaching the patient as an ordinary citizen and not merely a sick person to create a relationship of trust. We created three subcategories, including ***creation of a sense of security and a relationship of trust; protection of the patient's privacy, safety, and freedom; and care taking into account the patient's thoughts and feelings***. ***Creation of a sense of security and a relationship of trust*** consists of placing a sense of relief and trust into greetings and having an interest in and being thoughtful toward the patient. ***Protection of the patient's privacy, safety, and freedom*** consists of protecting the patient's privacy and protecting the patient's safety and freedom as a person. ***Care taking into account the patient's thoughts and feelings*** consists of sharing feelings, providing peace of mind, and providing care taking into account the patient's intentions and preferences.

Consideration and concern described by a participant:

> Nurses greet who they see and tell patients who they will look after on that day as well as individuals who they know, even if they are not patients who are under their charge for the day, that the meal has started. I think that individuals who they see are happy and that they feel a sense of peace of mind, and so make a point of being spoken to by nurses. (F)

Other participants said:

> I consider greetings important, and it implies that I will pass the day as part of the team, in that I believe in you too, so that the day will pass safely and smoothly. (B)
>
> To have people understand that I am reliable even with one word, I talk using polite language rather than informal language. (F)
>
> I perform bed-baths while talking and ask the patient whether I should change their undergarments. (C)
>
> For restrictions to physiological needs, such as diet restrictions, I consider whether the restrictions can be alleviated, even if slightly. (F)
>
> If I can understand how a certain person feels, then I can approach them with such knowledge about their mood during their hospital stay. (F)

2) Accurate observation of symptoms

Accurate observation of symptoms involves performing repeated observation using the five senses to observe well and accurately determining the patient's physical and mental condition to the extent of being satisfactory for the individual nurse with an interest in the patient, which is performed through various comparative examinations and during care by having the patient move. We created three subcategories, including ***careful observation and understanding of the patient's symptoms and complaints; repeated observation; and observe the patient's strengths through care***.

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Careful observation and understanding of the patient's symptoms and complaints consists of observing the patient's condition regularly, looking at their reactions and responding, making judgments after carefully listening to their symptoms and complaints, and creating conditions wherein it is easy for the patient to speak. ***Repeated observation*** consists of repeating observations until understanding them and comparing them with the normal state and determining the patient's situation without relying only on nursing records. ***Observe the patient's strengths through care*** consists of observing the need for care at the bedside, making preparations, and having patients move during care to observe their physical and mental state.

Consideration and concern described by a participant:

After ensuring the patient's environment in terms of whether their vital signs have not deviated from the normal range, whether there is no leakage from the drip infusion, and whether the infusion rate is right, and that there is no dangerous behavior by the patient concerned, I judge that I can move onto the next patient. (B)

Other participants said:

No matter who I ask, they come and observe, to talk about the condition of the acute-phase patient who is being observed. (B)

Because the paralysis is progressing, I repeat the observations to confirm the judgment of the preceding individual on duty. (B)

When they feel that something is odd, their condition is somehow different. Such sensations are important, and in some instances, the measured temperature and blood sampling data and even their talking manner, meal volume, and suffering suddenly change. (F)

The way that the patient reacts to the first word spoken by the nurse is very important, and it helps us to understand various things, such as the patient's level of consciousness, visual acuity, and auditory acuity. (B)

I make a conversation based on the cosmetics and stuffed toys at the patient's bedside to try and learn about the person who I am speaking to. I glance at the television program that they are watching together with them, and by making small talk, I can learn about their occupational information and background and change the way that I speak to them and react. (C)

The patient's personality and the way that they are received by the nurse can differ, and so I talk to try understanding the patient and take their records alone with a pinch of salt. (E)

I encourage patients to perform bed-baths by themselves and understand the consciousness and symptoms of the patients on the basis of whether they respond that they cannot do it or whether they end up only wiping their hands. (B)

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3) Working on the strengths of the patient

Working on the strengths of the patient involves addressing the needs of each individual as a team, such as looking toward recovery, making time to feel at ease, increasing the will for recovery, and creating a schedule for patients to display their abilities so that the patient can display their own self-healing and self-care abilities.

We created six subcategories, including ***providing nursing care required for the level of the patient's health, aiming to look toward recovery, making time to be able to spend in a pleasant manner, creating a plan that enables patients to display their abilities, fostering the ability of self-care, and providing intervention for individual needs through team collaboration.***

Providing nursing care required for the level of the patient's health consists of providing the nursing care required for each patient with different health levels and providing intervention at the time suited to the patient. ***Aiming to look towards recovery*** consists of conveying prospects of illness and treatment as well as supporting the will to want to get better and creating an environment with the patient's lifestyle in mind. ***Making time to be able to spend in a pleasant manner*** consists of improving symptoms that cause distress, making an inpatient environment where one can spend time in a pleasant manner, and having time to enable patient satisfaction and reassurance. ***Creating a plan that enables patients to display their abilities*** consists of creating a schedule and devising a plan so that patients can display their abilities. ***Fostering the ability of self-care*** consists of listening to the patient's thoughts about lifestyle, talking with patients to help them adopt treatment into their lifestyle, teaching patients about self-care suited to their symptoms and lifestyle, and helping patients maintain self-care following discharge. ***Providing intervention for individual needs through team collaboration*** consists of collaborating with doctors to improve the patient's level of satisfaction, revising care, and continuing nursing care through sharing information within the team, expanding the patient's possibilities through team cooperation, and planning emotional control through nursing team collaboration.

Considerations and concerns described by a participant:

> I think that they wouldn't be able to remember if I say everything at once, so I try to explain by talking about lifestyle situations and scenarios as well as meals if it is meal time. (F)

Other participants said:

> While taking into account the patient's personality, I inform them of the pathology and symptoms that might arise from drug-taking and instruct them to call for a nurse. (D)
>
> With symptoms of any illness, the patient worries about whether it only affects them, and when told that it is not the case, they express relief on their face. (E)
>
> It is important for the patient to go back to their life, so I anticipate increasing the level of personal hygiene care and bed rest, even if a little, which I confirm with the doctor, and try preventing the patient from being bedridden. (D)

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Considering restoring the ability to perform activities of daily life (ADL) only, I carry out the role of negotiating rehabilitation requests with the doctor and conveying the family's intention to improve ADL. (A)

4) **Working on the strengths of the family**

Working on the strengths of the family involves the nurse proactively speaking to the patient's family at the hospital admission and when coming for meetings as well as ascertaining the state of the family members while being informed that the nurse is watching the patients and of the patient's condition. In doing so, nurses obtain the cooperation of the family for after discharge and work to help them so that they are able to provide the necessary care for the patient after discharge.

We created two subcategories, including ***drawing on the family's ability to care and conveying care methods to the family***. ***Drawing on the family's ability to care*** consists of listening to the family's intentions, sensing family fatigue, obtaining family cooperation, and helping the family visualize the patient's lifestyle. ***Conveying care methods to the family*** consists of informing the family of care that only they can provide and performing intervention so that the family can provide care.

Consideration and concern described by a participant:

The nursing team has a system of cooperation to accommodate time to speak to family members, even if it is tough. (F)

Other participants said:

I think that one should talk with the family at the right time, which is cultivated through experience, so I advise nurses and talk with the family even if I am not personally in charge. (F)

I acquire hints about how I should approach a patient based on the appearance of the family members who I meet. (B)

When I inform the family about the patient's changes, I also sympathize with the family; I tell them that the nurse is watching the patient, and we rejoice together that the patient can now move their body, which deepens the relationship of trust. (B)

I think that conversing with the family and conversing with the patient are equallyimportant, and when I meet them, I try to tell the family how the day went and what the patient has been able to do that they couldn't do before during visits. (B)

There is an increasing number of elderly individuals aged in their 90s, and I ask whether they have someone around to help, to inform about the progression of patient's health in future, what to do when the patient becomes unable to eat, and things that will be necessary. (E)

Nurses can provide toileting assistance during hospitalization, but if it turns out that the patient will go back to their own home after discharge, then I will see if the family can assist, and I will have them look at the present situation during hospitalization. (A)

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5) Understanding the role of acute care hospital nurses well

In **understanding the role of acute care hospital nurses well,** it was mentioned that, due to the short hospitalization period, interventions for family members to care for the patient at home and words of encouragement that can be conveyed to the patient because of the patient's efforts and persistence over the course of treatment after repeated hospitalization and discharge were left to the nursing staff involved in the patient's transfer to another hospital or after discharge.

We created one subcategory, which was ***providing care required of acute care hospital nurses. Providing care required of acute care hospital nurses*** consists of leaving family intervention up to nursing care after discharge, and concern for each individual arising during the course of care, which is difficult to share.

Consideration and concern described by an individual study participant:

> Normally, when a patient recovers or convalesces, they should return home, but there is the dilemma presented by discharging the patient to admit the next patient in the acute phase, when the family is not ready to do so. (F)

Other individuals said:

> (Regarding terminal phase patients who were repeatedly admitted and discharged from the hospital), we listened to the family background and feelings, and if the patient has to go to a different hospital for their last moments, for such individuals, in some instances I cannot put on the summary that I want them to take care here, and when a request is made (to the hospital where the patient is transferred) as is, I think about the mission of the acute care hospital in that they will not know how the patient's last moments will be. (E)

V. Discussion

This study visualized the current state of caring (consideration and concern) in nursing practice among mid-career generalist nurses at acute care hospitals in Japan where a community-based integrated care system has been introduced. In terms of caring by mid-career generalist nurses at acute care hospitals, it was thought that, after the community-based integrated care system was introduced in 2014, the mean length of hospital stay would decrease, which in turn affected caring in nursing practice. At acute care hospitals here, the mean length of hospital stay is decreasing, so comprehensively understanding caring through the nursing practices of mid-career generalist nurses who promote nursing care is essential as it clarifies points that serve as an example for new and junior nurses. In the discussion, we will compare the characteristics of caring through the nursing practice of mid-career generalist nurses at acute care hospitals against existing literature. Thereafter, we will examine the effect on caring in nursing practice associated with changes in the role of acute care hospitals under a community-based integrated care

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system.

Caring by mid-career generalist nurses at acute care hospitals involves placing importance on greetings and using polite language to provide a sense of security, and confidence, when providing effective nursing care during short hospital stays, through respecting the individual patient and protecting their safety, and providing ethical nursing care that protects the *patient's safety*, *and freedom as a person*. This has long been considered the basic nursing approach[6,8,13], and it is thought that greater emphasis is placed on establishing a relationship of trust early, and to start working toward discharge from the time of admission.

Furthermore, it can be said that nurses characteristically perform **accurate observation of symptoms** as part of consideration and concern in caring. Observation and monitoring in nursing care are always required from the start of nursing practice until completion, and the observation results are an important technique from the perspective of influencing assessments and evaluations[7].

Therefore, we were able to confirm that caring in nursing practice enriched with basic interpersonal skills, as well as observational skills, is considered more important than ever for shortening hospital stays and for early discharge, and is thus put into practice. Caring in nursing practice is an indispensable skill for improving observational skills and health assessments and in carrying out the community-based role of acute care hospitals. In a study specific to nursing care for discharge support,[16] emphasis was placed on planning and cooperation, while basic interpersonal support skills tended to be overlooked. Caring in nursing practice involving consideration and concern by mid-career generalist nurses at acute care hospitals to **respect individual patients and protect their safety**, and **accurately observing symptoms** also served as a fundamental nursing skill during basic education. Such skills are specifically conveyed as practice methods, and it is imperative for students and new nurses to understand these practical skills and related know-how to be able to use them from the early stage. For example, they should visualize the patient's condition regularly, repeat observations until they comprehend them, compare against the normal state, and have patients move during care to observe their physical and mental condition.

Furthermore, the nurses said that **working on the strengths of the patient**, and **working on the strengths of the family** were performed in anticipation of the future so that they could visualize the path to recovery and life after discharge. These practices were possible because mid-career generalist nurses could use past experiences. In being shown the way by nurses, patients obtain suggestions as to how to face their illness, which helps to motivate the patient to recover. Arita et al.[16] conducted a fact-finding survey of the actual situation regarding "ward nursing from the perspective of at-home care" in acute regional medical care support hospitals. In their conclusions, they noted "the importance of educational support that enables nurses to have opportunities to be able to visualize the patient's life at home from a time when they have little experience," and that the main

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factors included “drafting a plan for the transition to home,” “experience in home-visits after discharge,” and “experience in conference participation prior to discharge.” Caring in the nursing practice of mid-career generalist nurses at the acute regional medical care support hospital that was elucidated in the present study includes the ability to visualize the life of the patient and their family members after discharge. Therefore, it can be said that it is imperative that nurses perceive patients and their family as ordinary citizens, who are not only in the hospital, and pay attention to the lifestyle and life of the individual concerned. This should be done to be engaged in support for health as part of their life, and to provide support to help the individual lead their life in their own manner. In this way, perceiving the patient as an ordinary citizen, and devising ways for the patient to show their strengths to ensure ordinariness for the patient’s physical and mental stability, and providing multidisciplinary support in anticipation of life after discharge is consistent with the survey results of Tokuhara et al.[17] focusing on life assistance.

While the functions of hospitals in regional areas change, to **understand the role of acute care hospital nurses well**, nurses felt a dilemma in being in a situation where they have patients discharged at the stage when the feelings of the patient and their family member do not follow the recovery process. Furthermore, while repeating hospital admissions and discharges, they knew how the patient faced their illness and lived, and so they had words that they wanted to say to terminal phase patients and their family members, but they could not fully express them on the summaries of patients who are transferred for the terminal phase. Although they felt frustration in being unable to practice caring for such individuals, they carried out their clear-cut duties in their role as an acute care hospital nurse. Nurses are flesh-and-blood human beings, and it was thought that situations that cause conflict in caring practice are related to the motivation of the nurse. In the future, information about patients who provide consent, such as information on regional patient information systems, will be shared between organizations, which we believe will allow progress to be checked, and ensure continuity of caring in nursing practice.

A limitation of the present study was that the results are limited in terms of the fact that the subject sample consisted of mid-career generalist nurses at a single acute care hospital, and in particular, that the subjects were ward nurses of the department of internal medicine. To generalize our results, further accumulation of data from several acute care hospitals is needed. The survey was conducted during the second year of operation of the community-based care system, and we believe that caring by nurses in nursing practice was affected by the shortening of the mean length of hospital stays, and the state of development of the regional patient information sharing system. By comprehensively presenting caring in nursing practice of mid-career generalist nurses, we were able to clarify basic relationships of mutual trust, as well as improve observation and monitoring, which have been overlooked in the study of discharge support[15], and which is significant in that it supplements existing research.

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VI. Conclusion

As characteristics of mid-career generalist nurses at an acute regional medical care support hospital, we obtained five categories, including **respect for individual patients and protection of their safety**, **accurate observation of symptoms**, **working on the strengths of the patient**, **working on the strengths of the family**, and **understanding the role of acute care hospital nurses well**. Under the community-based integrated care system, mid-career generalist nurses at an acute regional medical care support hospital work to help patients and their family members display their strengths from the time of admission in the aim of early discharge, and on the basis of this, while performing accurate observations, they engage with the patient with respect, thereby creating a sense of security, and building a relationship of trust wherein emphasis is placed on basic interpersonal support and observation skills. Furthermore, in situations involving ongoing nursing care for early discharge, while the role of acute care hospital nurses was understood, nurses experienced a dilemma in having patients discharged before the family feels ready, and that individual caring in nursing practice aimed at caregiving could not be conveyed in the written summary. In regional caring in nursing practice, sharing of patient information is an issue, and we believe that the motivation of mid-career generalist nurses is also involved.

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ORIGINAL ARTICLE

Wellbeing, Sense of Coherence, and Emotional Labor among Healthcare Professionals

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ABSTRACT

This study aimed to determine whether the demands of emotional labor and its effects vary across disciplines of healthcare professionals, and to identify characteristics of health care workers with good psychological wellbeing. A self-administered cross-sectional survey was conducted involving 155 multidisciplinary healthcare workers at a rehabilitation hospital in Japan. The occupational differences in emotional labor and wellbeing（General Health Questionnaire: GHQ-12）among multidisciplinary healthcare workers were examined using ANOVA with Tukey post hoc comparison. Correlation analysis was performed to assess the relationships between demographic characteristics, emotional labor, sense of coherence (SOC), and wellbeing of participants. To identify factors predicting wellbeing, we generated two classification and regression trees (CART), with GHQ score (continuum variable) and a cutoff score of GHQ ≤ 3 as dependent variables. The SOC score was significantly associated with the GHQ score.

There were no significant occupational differences in the wellbeing and emotional labor of healthcare workers. Participants' age was negatively associated with duration, intensity, and variety of emotions required. None of the aspects of emotional labor were significantly associated with SOC or wellbeing. In the CART analysis, participants with a SOC score > 50 had the highest probability of maintaining good mental health (GHQ ≤ 3). The study concluded that emotional labor demands and their effect are prevalent across multiple professions. Strengthening SOC is vital in ensuring the good psychological status of healthcare professionals.

<Key-words>
Emotional labor, Sense of coherence, Wellbeing, Healthcare professionals

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I. Introduction

Due to demographic and epidemiological changes, several countries are experiencing and predicting a shortage of healthcare workers.[1-3] Recent statistics indicate that among all industries, the health and social care industry has the largest number of workers with mental health issues.[4] Occupational stress and burnout are common issues among healthcare workers, including physicians,[5,6] nurses,[7-9] social workers,[10] and physiotherapists.[11,12] Under these circumstances, healthcare workers are expected to address the diverse needs of patients/families who are experiencing discomfort, pain, and anxiety about their future. To establish therapeutic relationships, healthcare workers must recognize and validate the negative emotions of patients/families while managing their true feelings.[8,13] This emotional demand is referred to as emotional labor, a concept introduced by Hochshild.[14]

Emotional labor is multifaceted and has both positive and negative effects on the wellbeing of healthcare professionals[15-17]. Many studies have examined the dimension of emotional regulation, such as surface acting and deep acting. Surface acting requires healthcare workers to regulate their emotional expression and suppress their genuine feelings, whereas, in deep acting, they control their thoughts and emotions according to their professional roles. Previous studies have revealed that surface acting is harmful to the wellbeing of healthcare workers, resulting in burnout. Conversely, deep acting has been indicated to enhance the wellbeing of healthcare workers.[16,18,19] Grandey and Gabriel[15] suggested that the effects of surface acting and deep acting "can be neutralized and reversed under certain conditions," and identifying the moderators "can provide important insights about the theoretical processes of emotional labor" (p. 342).

Sense of coherence (SOC) is a concept based on the salutogenic model, which refers to the ability to perceive a stressful situation as understandable (sense of comprehensibility), manageable (sense of manageability), and meaningful (sense of meaningfulness). [20] Studies have revealed that SOC can moderate the impact of job stress, prevent burnout, and contribute to mental health maintenance.[21,22] Therefore, we hypothesized that SOC could be a moderator of the stress caused by emotional labor. Iwatani et al.[23] discovered that lower SOC might affect nurses' ability to cope with emotional labor; however, the moderating role of SOC against emotional labor is yet to be clarified.

Brotheridge and Grandey[18] discovered that the demands and characteristics of emotional labor differ by occupation type. They also highlighted the need to explore the relationships between demographic factors (age, gender, and race) and emotional labor. To the best of our knowledge, no study has examined the occupational differences in emotional labor among multidisciplinary healthcare workers. Thus, we evaluated the emotional labor of multidisciplinary workers in healthcare to determine whether emotional labor demands and their effects vary across disciplines. We also examined

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whether SOC moderated the effect of emotional labor on the wellbeing of healthcare workers. Furthermore, we attempted to identify the characteristics of healthcare workers with good psychological wellbeing.

II. Material and Methods

1. Participants and procedures

All healthcare workers (nurses, care workers, rehabilitation therapists, and social workers) in a rehabilitation hospital in Japan completed a self-administered survey. The hospital administrators distributed questionnaires to 155 healthcare workers. The study was conducted in December 2014.

The institutional review board of the hospital approved this study. A questionnaire along with a cover letter containing a consent form and instructions were distributed to the participants. The participants provided written informed consent attesting to their participation. To maintain confidentiality, participants returned the completed questionnaire in a sealed envelope.

2. Measure

1) Demographic and professional information

The participants provided information about age, gender, professional discipline (i.e., 1 = nurse, 2 = care worker, 3 = rehabilitation therapist, 4 = social worker), and duration of experience working in the current profession (months). We also asked if they were in a managerial position at the hospital (1 = No, 2 = Yes).

2) Emotional labor

In this study, emotional labor is defined as the emotional management required by health care workers to perform their tasks and interact with patients/families. Since the concept of emotional labor has not been universally defined and implemented, this study adopted Grandey and Gabriel's three-component model of emotional labor,[15] which categorizes emotional labor dimensions into emotional requirements (job-based requirements for emotional displays when interacting with others), emotional regulation (modification of feelings or expression), and emotional performance (observable expressions congruent with requirements). We used an additive scale constituting the Emotional Labor Scales (ELS) and Emotion Work Requirements Scale (EWRS).[18] The ELS comprises of six dimensions of emotional labor that fall under the emotional requirement and emotional regulation categories of the three-component model.[15] Within emotional requirements, we assessed the duration (item 1), frequency (items 2, 5, 7), intensity (items 3, 9), and variety (items 6, 11, 13) of emotional labor. Surface acting (items

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8, 12, 14) and deep acting (items 4, 10, 15) were evaluated as emotional regulation. For duration, the participants reported the average number of minutes interacted with patients/families in a day. Responses to other items were made on a 5-point Likert scale (1 = never, 5 = always). Higher ELS scores indicate that participants are engaged more in each aspect of emotional labor in their interactions with patients/families. For emotional performance, we used the EWRS to measure how frequently participants are required to display positive emotions (items 16–19) or to hide negative emotions (items 20–22) when interacting with patients/families. Responses were made on a 5-point scale (1 = not at all, 5 = always required). Higher EWRS scores indicate the participants' perception of a greater demand to perform emotional labor in the interaction with patients/families.

3) SOC

The 13-item SOC scale (SOC-13) developed by Antonovsky and translated into Japanese by Yamazaki was used to assess participants' SOC.[24] The SOC-13 comprises three domains: comprehensibility (items 2, 6, 8, 9, 11), manageability (items 3, 5, 10, 13), and meaningfulness (items 1, 4, 7, 12). Items are rated on a 7-point Likert scale (1 = not at all, 7 = extremely). The average scores for each domain were computed after reverse-coding was applied to items 1, 2, 3, 7, and 10. The validity of this scale has been examined, and its Cronbach's alpha ranges from 0.72 to 0.89.[25] A higher SOC score indicates that the participant has greater ability to cope with stress and to maintain health.

4) Wellbeing

We used the Japanese version of the General Health Questionnaire (GHQ-12) to evaluate participants' psychological wellbeing. This scale's internal consistency has been examined, and it has been reported to be internally reliable.[26] Responses corresponding to the presence of psychological distress and social dysfunction are rated on a 4-point scale ("not at all," "same as usual," "slightly more than usual," or "much more than usual"). In this study, a binary scoring method was adopted, in which the two least symptomatic answers are scored as 0 and the two most symptomatic answers are scored as 1 (i.e., 0-0-1-1), with scores ranging from 0 to 12. Higher scores indicate more psychiatric morbidity.

3. Statistical analyses

We presented continuous variables as mean and standard deviation or median and interquartile range and categorical variables as numbers and percentages. The occupational differences in emotional labor and wellbeing among multidisciplinary healthcare workers were analyzed using ANOVA with Tukey post hoc comparison. We assessed the correlations between study variables using Pearson's correlation coefficient. The α value for all statistical tests was set at 0.05 (two-tailed). To determine the characteristics associated with the wellbeing (GHQ-12) of participants, we generated the

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classification and regression trees (CART). CART is a recursive partitioning. It identifies an optimally efficient variable, which would maximize both the sensitivity and specificity in predicting outcomes. Then, it repeats the algorism and identifies combinations of those variables subsequently. For primary CART analysis, we set the GHQ-12 score (continuum variable) as the dependent variable. We conducted the secondary CART analysis to identify the characteristics associated with higher wellbeing, using a cutoff score of GHQ ≤3 as the dependent variable. Each independent variable was examined, and a split was made to maximize the sensitivity and specificity of the classification. We used the statistical software, IBM SPSS Statistics for Windows, Version 25.0. (Armonk, NY: IBM Corp.) for all analyses in this study.

III. Results

1. Characteristics of participants and occupational differences in emotional labor

Of the 155 questionnaires distributed, 142 (91.6%) were returned. After excluding 16 questionnaires due to significant missing data, 126 questionnaires (81.3%) were analyzed.

Table 1 shows the descriptive statistics of study variables. Participants' mean age was 30.5 ± 8.08 years. Among the participants, 74 (58.7%) were women, and 52 (41.3%) were men. The average length of career in the profession was 92.2 months (7 years and 8.2 months). In terms of profession, 39 participants were nurses (31.0%), 24 were care workers (19.0%), 58 were rehabilitation therapists (46.0%), and five were social workers (4.0%). ANOVA revealed no significant differences in any dimension of emotional labor and wellbeing among the professions. Thus, the sample was considered homogeneous in subsequent analyses.

The median duration of participants' interaction with patient/family per day was 360 minutes (six hours). The duration ranged from 5 to 480 min. 71 participants (58.6%) interacted with the patient/family for more than 300 minutes (five hours), while 14 participants (11.6%) spent <30 min daily with the patient/family. The mean scores of frequency, intensity, and variation on ELS were 7.96 ± 1.08, 4.35 ± 1.31, and 6.98 ± 1.88, respectively (Table 1). These results indicated that participants were engaged in emotional labor moderately, and participants used similar basic emotional expressions in performing emotional labor. The mean score of surface acting was 8.45 ± 1.85, whereas that of deep acting was 6.30 ± 1.82 (Table 1). The results showed that surface acting was performed slightly more by the participants than deep acting. The mean score of displaying positive emotions was 15.01 ± 2.15, whereas that of hiding negative emotions was 11.35 ± 2.10. Such results indicated that participants perceived that their jobs required them to display positive emotions and hide negative emotions equally often. The mean SOC-13 score was 54.44 ± 9.55. The mean GHQ-12 score was 3.2 ± 2.69. Seventy-five participants (59.5%) scored ≤3, indicating good mental health status.

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<Table 1> Descriptive statistics of study variables (n = 126)

Variable	n / mean	% / SD	range
Age	30.5	8.08	20 - 62
Gender			
Female	74	58.7	
Male	52	41.3	
Career in the profession (months)	92.2	84.39	7 - 499
Professional qualification			
Nurse	39	31.0	
Care worker	24	19.0	
Rehabilitation therapist	58	46.0	
Social worker	5	4.0	
Emotional Labor Scale			
Duration, min/d, median (25, 75%)	360	(120, 420)	
less than 30min	14	11.6	
60–270 min	36	29.8	
300–480 min	71	58.6	
Frequency	7.96	1.80	4 - 14
Intensity	4.35	1.31	2 - 10
Variety	6.98	1.88	3 - 15
Surface acting	8.45	1.85	4 - 15
Deep acting	6.30	1.82	3 - 11
Emotion Work Requirement Scale			
Display positive emotions	15.01	2.15	8 - 20
Hide negative emotions	11.35	2.10	6 - 15
Sense of coherence	54.44	9.55	22 - 81
General Health Questionnaire	3.20	2.69	0 - 10

2. Correlations between study variables

Table 2 shows correlations between study variables. Except for gender, demographic characteristics had weak or very weak associations with some dimensions of emotional labor. Age was negatively associated with duration ($r = -0.260$, $p < 0.01$), intensity ($r = -0.219$, $p < 0.05$), and variety ($r = -0.198$, $p < 0.05$) of emotional labor. Professional experience also negatively correlated with duration ($r = -0.289$, $p < 0.01$). Participants' age ($r = 0.199$, $p < 0.05$) and professional experience ($r = 0.223$, $p < 0.05$) also had weak associations with SOC.

None of the dimensions of emotional labor was significantly associated with SOC or GHQ-12 scores. Among the dimensions of emotional labor, duration had a weak

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association with intensity ($r = 0.232$, $p < 0.05$). Frequency was associated with intensity ($r = 0.270$, $p < 0.01$), variety ($r = 0.280$, $p < 0.01$), surface acting ($r = 0.327$, $p < 0.01$), deep acting ($r = 0.406$, $p < 0.01$), and display of positive emotions ($r = 0.314$, $p < 0.01$). Intensity had a strong association with variety ($r = 0.722$, $p < 0.01$) and a weak association with deep acting ($r = 0.404$, $p < 0.01$). Variety had a significant association with deep acting ($r = 0.594$, $p < 0.01$). Surface acting was associated with deep acting ($r = 0.307$, $p < 0.01$), display positive emotions ($r = 0.407$, $p < 0.01$), hide negative emotions ($r = 0.388$, $p < 0.01$). Display positive emotions also significantly correlated with hide negative emotions ($r = 0.533$, $p < 0.01$). Only SOC was significantly associated with GHQ score ($r = -0.437$, $p < 0.01$).

<Table 2> Correlations between study variables (n = 126)

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	Age	-												
2	Gender	.066	-											
3	Professional experiences	.893**	.071	-										
4	Duration	-.260**	.053	-.289**	-									
5	Frequency	-.058	.072	-.082	.032	-								
6	Intensity	-.219*	.175	-.16	.232*	.270**	-							
7	Variety	-.198*	.045	-.119	.097	.280**	.722**	-						
8	Surface Acting	.064	.048	.026	-.158	.327**	-.033	-.012	-					
9	Deep Acting	-.111	-.003	-.146	.015	.406**	.404**	.594**	.307**	-				
10	Display Positive Emotions	-.032	-.141	-.106	-.023	.314**	-.03	-.012	.407**	.112	-			
11	Hide Negative Emotions	.118	.01	.061	-.182*	-.051	-.153	-.126	.388**	.014	.533**	-		
12	Sense of Coherence	.199*	.086	.223*	-.061	-.037	-.147	-.085	-.16	-.173	-.078	-.077	-	
13	General Health	-.103	.008	-.042	.05	-.033	.055	.067	.057	.09	.138	.135	-.437**	-

**p <.01, two-tailed, *p <.05, two-tailed

3. CART analysis

Figure 1 shows the primary CART analysis results. In the CART analysis, we entered the number of participants and the mean and standard deviation of GHQ-12 scores for each group. The first split occurred with a SOC score of 47. Participants with a SOC score > 47 were divided into two groups: SOC > 58 group (Subgroup 1) and SOC ≤ 58 group (Subgroup 2). Participants with a SOC score ≤ 47 were also divided in terms of professional experience (months): > 93 months (Subgroup 5) and ≤ 93 months. Those with ≤ 93 months of professional experience were further divided into male (Subgroup 3) and female (Subgroup 4) categories.

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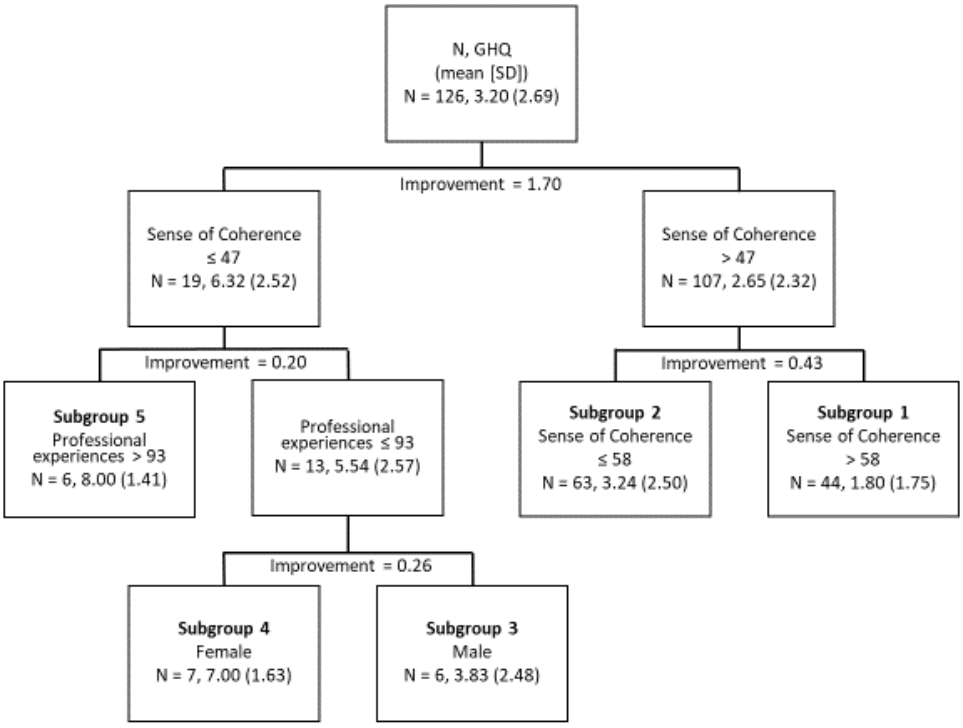

†Professional experience refers to the length of a participants' career in a discipline.

<Figure 1> Subgroups related to GHQ (continuous variables)

The secondary CART analysis identified the characteristics of healthcare workers with good psychological wellbeing (Figure 2). Of the 126 participants, 59.5% scored ≤ 3 on the GHQ. The first split occurred with a SOC score of 50. Participants with a SOC score > 50 (Subgroup 1) showed the highest probability (73%) of having good mental health status. The SOC ≤ 50 group was further divided into male (Subgroup 2) and female (Subgroup 3) categories. The probabilities of scoring GHQ ≤ 3 were 42.9% and 10.0% for Subgroups 2 and 3, respectively. Comparing to Subgroup 1, Subgroup 2 tended to be lower wellbeing, but not significantly different (odds ratio [95% confidence intervals]: 0.38 [0.12-1.20]). On the other hand, Subgroup 3 was significantly lower wellbeing (0.06 [0.01-0.26]).

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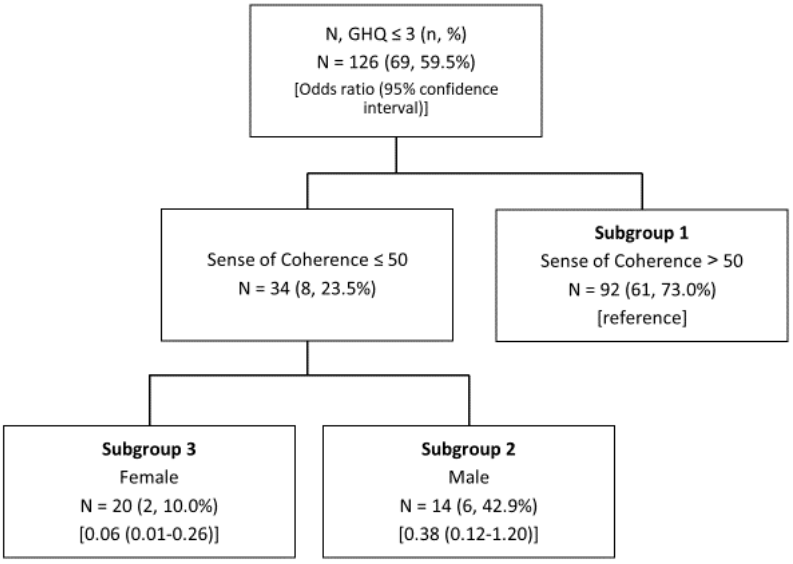

<Figure 2> Subgroups related to GHQ (score 3 or less)

IV. DISCUSSION

To the best of our knowledge, this is the first study to determine whether there are variations in emotional labor among multidisciplinary healthcare workers in Japan. The results indicated that the degree of emotional labor was similar across professions. None of the dimensions of emotional labor were associated with SOC or the wellbeing of healthcare workers. Thus, we could not clarify the psychological impact of emotional labor and the moderating function of SOC. Ashforth and Humphrey[27] discussed that consistency between emotional labor and social identity may result in improved wellbeing. Our findings suggest that emotional labor is rooted in professional norms related to interactions with patients/families and remains consistent regardless of the professional background of healthcare workers.

The association between demographic characteristics (i.e., age and gender) and emotional regulation (i.e., surface acting and deep acting) in this study is inconsistent with the findings of previous studies.[28,29] We discovered a negative association between age and emotional requirements (i.e., duration, intensity, and variety). Younger workers were more likely to interact longer with patients/families and express intense and diverse emotions. Similarly, less experienced workers reported a longer duration of emotional labor. These findings imply that younger or less experienced healthcare workers are more vulnerable to psychological stress due to emotional labor. As stated above, the effect of emotional regulation "can be neutralized and reversed under certain conditions".[15] We discovered that surface acting was associated with the frequency of emotional labor alone,

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whereas deep acting was associated with frequency, intensity, and variety of emotional labor. Thus, a genuine emotional commitment to patients/families may be a protective factor against the effects of emotional regulation on the psychological burden.

The findings of this study support previous studies, which suggested that high SOC is associated with having positive perceptions of stressors and improved wellbeing.[21,23,30,31] CART analysis revealed that SOC is the strongest predictor for wellbeing among healthcare workers. It also showed that a SOC score of 50 could be an indicator of a healthcare worker's potential ability to maintain good psychological health.

This is a single-center study, so the generalizability of the findings is limited. Although these sample sizes represent the actual distribution of healthcare workers in Japanese rehabilitation hospitals, the disproportionate sample sizes for multidisciplinary health professionals in this study could be a limitation. The number of social workers was smaller than those of other health professionals. In addition, the study did not include doctors, due to inability of recruitment. The level of emotional labor could be varied depending on a type of professions. Those limitations might have affected the findings regarding occupational differences. Future studies should recruit participants, including doctors, from multiple hospitals to confirm that practicing emotional regulation when interacting with patients/families is a shared task among multidisciplinary healthcare workers. Hochschild's concept of emotional labor has been applied to collegial emotional labor in interprofessional relationships.[32] The ability to work with professionals from other disciplines is an essential skill; however, it can be a major stressor for healthcare workers. Thus, further research is needed to explore emotional labor employed to maintain relationships and manage conflict with colleagues.

We also acknowledge that some events, including the COVID-19 pandemic have affected the emotional labor and wellbeing of health care workers since the data collection for this study. Research on emotional labor and wellbeing after a pandemic would help understand changes in their relationships with patients/families in a restricted environment.

Therefore, we conclude that in interacting with patients/families, emotional labor is not directly associated with healthcare workers' wellbeing because it is consistent with their professional identity. This study found that SOC could predict the psychological health status of healthcare workers and is suggestive of a screening cutoff point. Despite the limitations of this study, its findings could be useful in developing intervention programs that consider stress tolerance.

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ORIGINAL ARTICLE

Relationship between Physical Activity and Physical and Mental Functioning in Older Women Living in the Community

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ABSTRACT

Healthy Japan 21 (second term) in Japan's health policy sets a target of 6,000 steps per day for women aged 65 years and older. In 2019, the average number of steps taken per day by Japanese women aged 65 years and older was 4,656. This study used the above average number of steps as the standard and examined the differences in physical and mental functioning between those who walked more than the standard and those who walked less. The hypothesis stated that the group with an average number of greater than 4,656 steps would lead a healthier life than the group with fewer steps. The participants were 52 physically independent older women living in a community. The participants' mean age was 70.94±6.01 years. They were instructed to wear an accelerometer to measure their average number of steps and physical activity (PA) over a three-month period. The Lifecorder GS (SUZUKEN) was used as the accelerometer. Physical functions (grip strength; their ability to sit-up, bend forward, stand on one leg with their eyes open, stand on a chair for 30 seconds, complete a 10-meter obstacle walk, complete a 6-minute walk test; their toe flexor strength, and hip abductor strength) were also measured. Questionnaires were used to conduct (1) Activities of Daily Living (ADL) Assessment, (2) Quality of Life Assessment, (3) Psychological Assessment, and (4) Questions about Daily Life assessment. The participants were divided into two groups [high-step group (≥4,656 steps) and low-step group (<4,656 steps)] based on the number of steps they had completed daily. There was a significant difference ($p<0.001$) in the mean number of daily steps 9186.3±2362.3 in the high-step group versus 4512.4±634.4 in the low-step group. The PA of the high-step group was higher than that of the low-step group on all items. There was a significant difference between the two groups in ADL's total score. The difference in PA intensity between the two groups was significant, and there was a significant difference in View of Health Status. This suggested that the higher the PA, the higher the self-perceived health and physical fitness. The View of Health Status' results were consistent with the MOS Short-Form 36-Item Health Survey (SF-36) General Health's results. There was a difference in the physical and mental health status between those who walked an average number of steps (4,656 steps) and those who did not. This was especially true for physical function. Therefore, the study's hypothesis was supported. The results regarding the high-step group and low-step group showed that the low-step group also reached 10 MET hours per week. When Plus Ten is considered, it is recommended that older women in Japan walk approximately 6,000 steps per day.

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I. Introduction

According to the 2021 edition of the World Health Statistics released by the World Health Organization (WHO), Japan has the longest average healthy life expectancy of 74.1 years. Japan also ranked first in terms of longest average healthy life expectancy for the different sexes, with 72.6 years for males and 75.5 years for females[1]. Healthy life expectancy is defined as "the period of time during which a person can live independently," as proposed by the WHO[2]. Health Japan 21, launched in 2000, has as its main goals: "extension of healthy life expectancy" and "reducing health inequities"[3]. Health Japan 21 (second term) was evaluated at mid-term in 2018, and progress had been made on 21 out of 53 goals. It is very likely that these will be achieved by 2022[3]. However, more efforts are needed to strengthen health promotion programs across the country to achieve this goal. Health Japan 21 recommends physical activity (PA) and exercise to achieve the goals of "extending healthy life expectancy" and "reducing health disparities[4]." Stenholm et al. reported that leisure-time PA is associated with an increase in healthy life expectancy[5].

Substantial evidence demonstrates the profound effects of PA and exercise in protecting against many chronic diseases, especially cardiovascular diseases and cancer[6-8]. Despite the evidence supporting PA, which has been present for many decades, there remains a very high prevalence of physical inactivity (PI) and sedentary behavior worldwide[9-11]. Those who are physically active on a daily basis are considered to be able to live independently, even in old age. Older adults with high levels of PA have been reported to have higher levels of physical fitness and cognitive function[12-14].

In daily life, PI is often measured over a long period of time, using questionnaires and/or measuring devices to measure heart rate, number of steps, and intensity of activity. Although large-scale PA surveillance data provide valuable information regarding the evolving PA/PI trends within the United States, limitations with self-reported PA habits have been regularly referenced as a primary factor that complicates our interpretation of the number of individuals meeting PA guidelines[15]. For example, objectively measured PA data from the 2005 to 2006 cycle of the National Health and Nutrition Examination Survey (NHANES) revealed that only 9.6% of the population met PA guidelines, compared to 62% when PA was self-reported. These stark differences between self-reported and device-measured PA may be related to the differences between objectively determined and individual perceptions of PA intensity. Many studies that objectively quantify PA intensities apply accelerometers and evaluate them for seven days[16-18]. However, it is considered insufficient to assess the amount of PA of participants in just seven days.

The decline in step count and physical fitness becomes significant around the age of 60-70[19,20]. Activities of Daily Living (ADL) appears earlier in women than in men, and women's independence gradually declines from around age 70 years old, due to a decline in muscle strength and motor function[21,22]. ADL is the minimum movement required in daily life, and consists of" getting up, transferring, moving, eating, changing clothes,

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excreting, bathing, and conditioning". This may be related to the fact that women require a longer period of care than men do. It is recommended to increase PA in daily life, especially walking, to prevent nursing care[23].

The relationship between the amount of PA and physical and mental functioning in older women is important, particularly from the perspective of health education in old age. Healthy Japan 21 (second term) in Japan's health policy sets a target of 6,000 steps per day for women aged 65 years and older. In 2019, the average number of steps taken per day by Japanese women aged 65 years and older was 4,656[24]. Previous studies have not examined the differences in physical and mental functioning based on the current average number of steps. Therefore, this study aimed was to fill this gap. The study's hypothesis is that the group with an average number of steps greater than 4,656 would lead a healthier life than the group with fewer steps would.

II. Methods

1. Participants

The participants were 52 older women living in Matsuyama City, Ehime Prefecture, Japan. The mean age of the participants was 70.94±6.01 years. Inclusion criteria for participation in the study were older adult females who belonged to six Matsuyama Fureai-ikiiki salons and lived independently in the community. The salon is a place for residents to visit, as judged by Matsuyama City. It is composed of a group of about 10 or more older people aged 65 years or over who reside in the city. The Matsuyama City government entrusts the Matsuyama City Council of Social Welfare with the support of salon activities. Matsuyama City opened salons for the older to maintain and improve the physical and mental functioning of older adults and prevent long-term care.

2. Data Collection

The study was conducted from September 2017 to December 2017. In this study, the participants' PA was measured for approximately three months using accelerometers. The participants were instructed to always wear a PA accelerometer, except when bathing, swimming or sleeping. Physical fitness tests and questionnaires were administered on December 15, 2017, when the PA accelerometers were collected.

3. Data Contents

1) Accelerometer

The Lifecorder GS (SUZUKEN) was used as the accelerometer. The days with fewer than 500 steps per day are considered as days on which the participants forgot to wear the accelerometer and were excluded from the analyzed target days. The accelerometer used in this study detected activity intensity in 11 steps from 0, 0.5, 1, to 9. It has a function to record activity intensity every 2 minutes from the most frequent value of the

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activity intensity measured 30 times every 4 seconds, making it possible to determine the activity intensity at a certain point in time. PA intensity was expressed in metabolic equivalents (METs), with accelerometer intensities "1-3" being low intensity (<3 METs), "4-6" being moderate intensity (3-6 METs), and "7-9" being high intensity (>6 METs). The validity and reliability of the accelerometers used in this study were confirmed by Kumahara et al[25]. The average weekly PA of the participants was also analyzed as MET hours per week.

2) Physical functioning assessment

Measurements included height, weight, and physical function (grip strength, sit-up, forward bending, one-leg standing with eyes open, 10-m obstacle walk, 6-minute walk test, toe flexor strength, hip abductor strength, and 30-second chair stand). Grip strength was measured twice on both the right and left sides, with the higher value on each side being used to determine the average of the right and left sides. The average was used to determine grip strength. Sit-ups were measured by the number of sit-ups performed in 30 seconds. Forward bending was performed twice, with the higher value being used for the study. Standing on one-leg with eyes open was performed for a maximum of 120 seconds. The 10-m obstacle walk was performed twice, and the faster result of the two was recorded. In the 6-minute walk test, participants walked around the perimeter of a 50-m circle, and the distance walked in six minutes was recorded. Toe flexor strength was measured twice on both the left and right, with the higher value of each being used to obtain the average of the two. Abductor strength was measured twice on both the right and left sides using a hand-held dynamometer. The higher value of each was used to get the average of the two. The 30-second chair stand was measured as the number of times the participant could sit and stand up in 30 seconds.

The PA criteria (living activity or exercise) for people aged 65 years and over in Health Japan 21 (second term) is “PA 10 METs per hour per week regardless of intensity” based on previous research[26-29]. PA 10 METs per hour per week is specifically 40 minutes of daily PA, which qualifies as any movement if it does not involve lying down or sitting. The PA’s intensity at rest is one MET. METs were calculated by considering the intensity of PA at rest as one MET and how many times more calories are burned during exercise. For example; walking slowly is about two METs, walking is three METs, and jogging is seven METs.

3) Questionnaire Survey

① ADL Assessment

The ADL test is a self-administered questionnaire. ADL is translated as the ability to perform daily living activities. ADL is an important indicator in assessing older individuals’ physical and mental functions. It is a major factor that defines their way of life[30]. The ADL test (Ministry of Education, Culture, Sports, Science, and Technology) was conducted to evaluate ADL. The ADL test consisted of 12 items representing the ADL

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capability domains of walking ability, changing and holding posture, balance, muscular strength, and dexterity (manual activity). The options are listed as one, two, and three.

② Quality of Life Assessment

This study used the MOS Short-Form 36-Item Health Survey version 2 (SF-36v2), which has excellent validity and reliability and is widely used internationally, to assess Health-Related Quality of Life (HRQOL). SF-36 is based on a universal concept for measuring. It can measure the QOL of patients with various diseases as well as that of healthy people. The scoring of the SF-36v2 subscales is as follows: (1) Physical functioning (2) Role physical, (3) Bodily pain, (4) General health, (5) Vitality, (6) Social functioning, (7) Role emotional, and (8) Mental health. The scores of the SF-36v2 subscales and the deviation scores based on the national average were calculated according to the SF-36v2tTM Japanese manual HRQOL scale. The higher the score for all items, the higher the QOL.

③ Psychological Assessment

The Japanese version of the Profile of Mood States (POMS) was used to assess mood and emotion. The reliability and validity of this scale have been verified[31]. This scale consists of six subscales: (1) tension-anxiety, (2) depression-dejection, (3) anger-hostility, (4) vigor-activity, (5) fatigue-inertia, and (6) confusion-bewilderment. It can comprehensively capture mood and emotions. The obtained values were evaluated according to the mood-profile conversion table. Owing to the characteristics of the evaluation, higher scores are preferred only for "vigor-activity," while lower scores are preferred for the other items.

④ Questions about Daily Life

The participants were asked three questions about their daily lives. For "view of own health status," participants were asked to choose from the following options: 1. very healthy, 2. fairly healthy, 3. not very healthy, or 4. not healthy at all. For "view of own physical fitness," the participants were asked to choose from the following options: 1. very confident, 2. fairly confident, 3. not very confident, and 4. not confident at all. For "frequency of exercise," the participants were asked to choose from the following options: 1. almost every day (3 days per week or more), 2. sometimes (1–2 days per week), 3. occasionally (1–3 times per month), and 4. never.

4. Statistical Analysis

The participants were divided into two groups based on the number of steps day had per day. The two groups were the high-step group (≥4,656 steps) and low-step group (<4,656 steps). Two independent groups of comparison tests were used to test for significant differences. The results are presented as the average ± standard deviation. An independent sample t-test was used to compare the step volume, PA intensity and physical function assessments between the two groups. The Mann-Whitney U test was used to

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compare the two groups in the questionnaire survey. The statistical software IBM SPSS Statistics 27.0 was used, and the significance level was set at less than 5%.

5. Ethical Considerations

The staff of the Matsuyama Social Welfare Council explained this study to the participants at each salon. All participants provided written informed consent before participating in the study, and the study protocol was designed according to the Declaration of Helsinki.

III. Results

The high-step group had 39 participants (n=39), and the low-step group had 13 participants (n=13). The mean for age, height, weight, and body mass index (BMI) of the high-step group was 70.1±5.89 years, 151.2±5.83 cm, 50.2±9.65 kg, and 21.8±3.67, respectively. The mean for the low-step group was 73.5±5.65 years, 151.5±5.58 cm, 53.3±10.43 kg, and 23.2±4.15. There were no significant differences between the two groups. The effective number of days for the analysis of the number of steps was 95.0 ± 9.89 days for the high-step group and 89.1±11.0 days for the low-step group. The mean number of steps per day was 9186.3±2362.3 in the high-step group and 4512.4±634.4 in the low-step group, a significant difference ($p<0.001$). The results obtained from the accelerometers in the high-and low-step groups are presented in Table 1. The results of the physical functioning assessment for both groups are presented in Table 2. The results of the ADL test are presented in Table 3, and those of the SF-36v2TM and POMS are presented in Table 4. Lastly, the results of the daily life questionnaire survey are presented in Table 5.

<Table 1> Results of the PA by the Steps Volume Group

		Step group, step/d		P-value
	Total	High : ≧4,656	Low : <4,656	
	(n=52)	(n=39)	(n=13)	
Step volume	7250.2 (2831.3)	9186.3 (2362.3)	3905.1 (634.4)	0.001***
PA intensity				
Low intensity (<3 METs), (time)	46.6(17.3)	55.5(16.1)	29.7(5.9)	0.001***
Moderate intensity (3-6 METs), (time)	18.3(13.2)	25.6(12.9)	6.2(2.5)	0.001***
High intensity (>6 METs), (time)	1.1(1.4)	13.9(1.5)	0.4(0.3)	0.001***
Mets·hour/week	24.5(1.5)	31.4(8.7)	12.5(2.2)	0.001***

*P<0.05, **P<0.01, ***P<0.001 An independent sample t-test High : ≧4,656 vs Low : <4,656

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<Table 2> Results of their physical functioning by the Steps Volume Group

	Total (n=52)	Step group, step/d High: ≧4,656 (n=39)	Low: <4,656 (n=13)	P-value
Grip strength, (kg)	21.1(4.2)	21.6(3.9)	18.4(3.9)	0.01**
Sitting-up, (times)	7.5(6.0)	9.2(5.8)	2.4(3.2)	0.001***
Bending forward, (cm)	36.5(8.0)	37.7(6.0)	32.3(11.2)	0.12
Standing on one leg with their eyes open, (time)	70.6(44.5)	76.9(41.3)	34.6(33.0)	0.001***
10-m obstacle walk, (time)	8.2(1.2)	8.0(1.1)	8.9(1.2)	0.01**
6-minute walk test, (m)	515.8(59.6)	537.0(43.6)	460.8(66.8)	0.01**
Toe flexor strength, (kg)	6.8(2.5)	7.1(2.6)	5.4(1.7)	0.01**
Hip abductor strength, (kg)	23.2(6.9)	24.2(6.7)	19.0(5.7)	0.01**
30-second chair stand test, (times)	18.2(4.1)	19.1(3.9)	15.0(2.9)	0.001***

*P<0.05, **P<0.01, ***P<0.001 An independent sample t-test High: ≧4,656 vs Low: <4,656

<Table 3> Results of ADL testing by the Steps Volume Group

	Total (n=52)	Step group, step/d High: ≧4,656 (n=39)	Low: <4,656 (n=13)	P-value
1. Walking	2.5(0.6)	2.5(0.6)	2.3(0.7)	0.39
2. Running	1.9(0.7)	2.0(0.7)	1.7(0.6)	0.21
3. Jumping over a ditch	2.4(0.7)	2.5(0.7)	2.0(0.6)	0.01**
4. Climbing up the stairs	2.3(0.7)	2.4(0.6)	1.9(0.8)	0.07
5. Standing from a sitting posture (Seiza)	2.4(0.7)	2.5(0.7)	2.3(0.6)	0.35
6. Balancing on one-leg with eyes open	2.2(0.7)	2.2(0.7)	2.2(0.7)	0.90
7. Standing in a bus or train	2.3(0.6)	2.5(0.5)	1.9(0.6)	0.01**
8. Putting on pants or a skirt while standing	2.7(0.5)	2.7(0.5)	2.6(0.5)	0.32
9. Buttoning or unbuttoning shirts	2.2(0.6)	2.2(0.6)	2.1(0.5)	0.45
10. Folding a futon up and down	2.6(0.5)	2.7(0.4)	2.3(0.5)	0.01**
11. Carrying an object	2.6(0.5)	2.8(0.4)	2.1(0.5)	0.001***
12. Sitting-up	1.7(0.8)	1.7(0.8)	1.5(0.5)	0.20
Total score	27.7(4.7)	28.8(4.4)	24.8(4.2)	0.01**

*P<0.05, **P<0.01, ***P<0.001 Mann-Whitney U test High: ≧4,656 vs Low: <4,656

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<Table 4> Results of the SF-36v2TM and POMS by the Steps Volume Group

	Total (n=52)	Step group, step/d High: ≧4,656 (n=39)	Low: <4,656 (n=13)	P-value
SF-36v2TM (score)				
Physical functioning	47.4(10.9)	50.8(8.4)	40.2(13.8)	0.01**
Physical Role	47.3(10.0)	49.1(8.3)	41.9(14.4)	0.08
Body pain	50.8(9.2)	52.3(9.0)	56.5(8.5)	0.05*
General health	52.8(7.9)	53.8(7.5)	48.7(7.9)	0.05*
Vitality	52.6(7.5)	53.5(6.6)	49.5(9.2)	0.18
Social functioning	50.9(7.9)	50.5(8.3)	50.0(6.6)	0.38
Emotional Role	49.1(10.2)	51.2(8.2)	42.5(12.3)	0.05*
Mental health	53.5(7.4)	54.3(7.3)	50.7(7.0)	0.12
POMS (score)				
Tension-anxiety	44.3(6.3)	44.2(7.0)	44.7(3.4)	0.32
Depression-dejection	44.8(5.7)	44.2(5.6)	45.8(5.7)	0.46
Anger-hostility	43.9(5.2)	43.3(5.5)	44.8(4.0)	0.23
Vigor-activity	48.1(9.3)	48.9(9.5)	47.4(8.5)	0.73
Fatigue-inertia	44.6(6.1)	44.5(6.7)	44.4(4.1)	0.54
Confusion-bewilderment	48.8(6.3)	47.5(5.7)	52.1(6.8)	0.05*

*P<0.05, **P<0.01 Mann-Whitney U test High: ≧4,656 vs Low: <4,656

<Table 5> Results of the survey on daily life by the Steps Volume Group

	Total (n=52)	Step group, step/d High: ≧4,656 (n=39)	Low: <4,656 (n=13)	P-value
View of own health status	3.2(0.5)	3.3(0.5)	2.8(0.4)	0.01**
View of own physical fitness	2.7(0.5)	2.8(0.5)	2.5(0.5)	0.13
Frequency of exercise	2.8(1.2)	2.9(1.2)	2.8(1.1)	0.89

** P<0.01 Mann-Whitney U test High: ≧4,656 vs Low: <4,656

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IV. Discussion

PA was higher in the high-step group in all items, and a significant difference was observed between the high- and low-step groups. The difference in PA intensity between the two groups was remarkable. It was revealed that the high-step group spent a longer time exercising at a high PA intensity. The mean value of the low-step group was 12.5 MET hours per week. The average number of steps (3,905.1 steps) in the low-step group was lower than the current average number of steps (4,656 steps) for Japanese women aged 65 years and older, but it reached the 10 MET hours per week.

The physical functioning assessment showed a significant difference between the mean values of both groups in all items other than forward bending. Older people with high PA have been reported to be more flexible[32,33]. The results of this study were not consistent with those findings. However, as for overall physical strength, the high-step group had higher physical strength than the low-step group. In the ADL test, there were significant differences between the two groups in "Jumping a ditch," "Standing on the bus or train," "Folding up and down a futon," “Carrying," and "Total score." It was speculated that most of the items' significant differences were because they required dynamically exerted strength, which was related to the PA's daily level. A significant difference was also found in the total score, and older people with high PA had high physical functioning and ADL.

The SF-36v2 revealed significant differences in physical function, body pain, general health, and role-emotional. Of the four items, only bodily pain was preferred in the low-step group. It is considered that the difference in the numerical values of this item indicate the results of physical function assessment, such as grip strength. The actual amount of PA is shown in Figure 1. In role-emotional, the low-step group scored much lower than the national average. Reading from the role-emotional indicators of SF-36v2, the low-step group may have psychological difficulties during work and/or regular activities. It was inferred that the high-step group was more likely to engage in social participation. Bodily pain was similar to the national average in the high-step group, but much better in the low-step group. It was speculated that the low-step group of these particular participants was not associated with physical pain and low PA. People who achieve the recommended level of PA are reported to have higher HRQOL than those who do not[34]. In this study, the values in the high-step group were higher in the items for which no significant differences were found, and they generally supported previous studies. The POMS results showed a significant difference only in confusion-bewilderment. The low-step group was not considered depressed. Aoyagi et al.[35] reported that depression is less likely if an individual walks an average of 4,000 or more steps per day. It is estimated that if you do not lead a secluded life, you can maintain a PA level of approximately 4,000 steps per day. The study's participants seemed to be related to the fact that no people who were withdrawn from the salon on a regular basis.

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The results of the daily life questionnaire survey revealed a significant difference in terms of health status. Although there was no significant difference in the participants' view of their physical fitness, there was a difference in the scores. The higher the PA, the healthier and physically stronger one feels. The participants' view of their health status was consistent with the SF-36v2TM general health results.

We gather from this study that there is a difference in the mental and physical condition of 65 year old Japanese women who walk an average number of steps (4,656 steps) and those who do not. Therefore, this study's hypothesis was supported.

According to Health Japan 21 (second term), the target number of steps per day for women over 65 years of age is 6,000. Older women can expect to achieve this goal by walking 10 minutes more than we currently do. In general, an increase in the amount of PA in older individuals improves their physical functioning[36,37]. It also improves their QOL[38]. Health 21 (2nd edition), the Active Guide based on "PA reference 2013" introduced "Plus Ten" as a tagline for encouraging daily PA[39]. Plus Ten involves 10 minutes of increasing daily PA, especially walking. The results regarding the high-step group and low-step group showed that the low-step group also reached 10 MET hours per week. When Plus Ten is considered, it is recommended that older women in Japan walk approximately 6,000 steps per day.

Declaration of Conflicting Interests

The author declares that there is no conflict of interest.

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ORIGINAL ARTICLE

Effects of Reflection on Preschool Teacher Efficacy and Stress Related to Caring for Children with Special Needs

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ABSTRACT

As the demand for childcare increases, the expectations placed on preschool teachers has also been increasing; this has proliferated stress and led to burnout among many preschool teachers. The literature on stress among preschool teachers consists of several contributors and associated factors. In this study, I focused on the stress caused by the difficulty in understanding and managing children with special needs and examined the effects of preschool teacher reflection on preschool teacher efficacy and stress related to understanding and managing children.

For preschool teacher efficacy, as reflected by preschool teachers themselves, neither self-consideration nor self-consciousness had an effect on preschool teacher efficacy. Regarding reflection on children, child analysis had a significant positive effect on preschool teacher efficacy but child detection did not. For reflection through others, gathering information from others had a significant negative effect on preschool teacher efficacy but using other people's information did not. Conversely, for stress related to understanding and managing children, regarding reflection on preschool teachers themselves, indicated self-consideration had a significant positive effect on stress but self-consciousness did not. For reflection on children, child analysis had a significant negative effect on stress but child detection did not. Regarding reflection through others, neither using other people's information nor gathering information from others had an effect on preschool teachers' stress related to understanding and managing children.

These results suggest that preschool teachers' child analysis can lead to cyclical reflection through the awareness of essential aspects, such as the ALACT model proposed by Korthagen (2001). Further, it was suggested that this kind of reflection may improve the sense of efficacy among preschool teachers and reduce stress related to understanding and managing children with various issues and characteristics, leading to high-quality childcare.

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I. Introduction

In recent years, although there has been a decline in birth rates, the demand for childcare and the expectations of preschool teachers has been increasing because of the growing numbers of working parents, integrated childcare, and social demands for childcare support services[1,2]. Besides the increased time constraints of extended day care and weekend care, diverse parent and child needs have increased the stress on preschool teachers[3].

Many researchers have investigated stress among preschool teachers and identified numerous contributors and associated factors, such as difficulties in understanding and managing children, human relations at the workplace, heavy workloads, and lack of time[1,3-5]. Matsumura classified stress among childcare providers into three categories: work environment and workplace relationships, dealing with children, and gaps between knowledge and the workplace[6]. In this study, I focused on difficulties in managing children.

Surveys have found that the rate of children with special needs enrolled in preschools with no specified diagnosis is 83%–88%[7,8]. Researchers have characterized such children as follows: "There may be a disability but no diagnosis has been made, or it is difficult to know whether the behavior shown by the child is due to the disability or the environment"[9].Further, researchers have endeavored to understand how to appropriately respond to these children with special needs[10-13] because caring for children with undiagnosed developmental disability significantly contributes to burnout in preschool teacher[14].Specifically, although there are similar challenges with developmental disabilities, individual children exhibit individual manifestations of their disabilities, making it even more difficult for preschool teachers to determine how best to manage their feeling[15], which in turn increases their stress.

High untreated stress among preschool teachers of children with special needs can cause not only physical discomfort, such as back pain and fatigue, but also mental fatigue[2,3]. Furthermore, Akada found that the stress of preschool teacher lowered quality of care[16]. Therefore, I believe it is necessary to examine factors that contribute to preschool teacher stress as well as those that reduce stress and improve their coping skills and stress responses.

Watanabe and Aoyama confirmed that preschool teacher expertise affects preschool teachers' stress[17]. It has been found that the expertise of childcare providers can be improved through the accumulation of childcare practice; however, according to Ueyama and Sugimura, appropriate teaching methods, knowledge, and skills cannot be acquired with more years of experience[18]. Rather, improving expertise requires the ability to reflect on and learn from experience[19-21]. This suggests that reflection can increase the expertise of preschool teachers, enable them to assess children with various issues more accurately, and reduce stress related to understanding and managing children.

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Additionally, Seki and Kodama identified that reflection had a positive impact on improving self-efficacy and self-esteem; although the subjects of their study were not preschool teachers, the results suggest that reflection can increase preschool teacher efficacy[22]. In other words, reflection is a factor that should be emphasized because it affects both stress related to understanding and managing children and the improvement of preschool teacher efficacy.

Tsumori stated that adding consideration to introspection is reflection[23]. Reflection plays an important role in the practice and growth of preschool teachers[24]. Sugimura et al. identified three types of reflection among preschool teachers: reflection on the preschool teachers themselves, reflection on the children, and reflection through others[24-26].Sugimura et al.'s factor analysis findings revealed that reflection on the preschool teachers themselves had a two-factor structure of self-consideration and self-consciousness, reflection on the children had a two-factor structure of child analysis and child detection, and reflection through others had a two-factor structure in terms of using other people's information and gathering information from others[24-26]. Watanabe and Aoyama used a scale that measured reflection as expertise and analyzed its relationship with preschool teacher stress, but they excluded reflection through others[17]. However, Ueyama and Sugimura described the possibility that reflection through interaction with others can help preschool teachers rethink their objective views on children and childcare[18].

Regarding reflection, preschool teachers must focus on interacting with the children in their care, and reflection on their actions is usually difficult in the moment[27]. Additionally, childcare activities are always immediate, contingent, and situation specific; therefore, it is often difficult to predict and plan completely in advance[28]. However, as Sugimura et al. indicated, in a narrow sense, reflection means looking back during and after practice, and it may not include prospecting before practice. Nevertheless, because the activities of planning and forecasting are often based on reflection, it is good to consider them without separating them from reflection[24].

Meanwhile, in teacher education, Korthagen[29,30] proposed the ALACT model (1. Action → 2. Looking back on the action → 3. Awareness of essential aspects → 4. Creating alternative methods of action → 5. Trial), wherein action and reflection occur alternatively, to explain the ideal process of experiential learning. In actual teacher education, reflection is the foundation of the ALACT model[29-30]. The act of reflection is not piecemeal in advance or after the fact; rather, it is defined as assessing the child with an outlook before practice, reflecting on the action, and developing childcare activities in a cyclical manner.

In consideration of the inconsistent findings I have just discussed, it is necessary to examine more specifically the relationships between reflection and preschool teacher efficacy and stress related to understanding and managing children. In light of the above, this study aims to test how the sub factors of reflection affect preschool teacher efficacy

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and preschool teacher stress related to understanding and managing children. Thus, I tested the following hypotheses:

H1: Reflection sub factors have a positive impact on increasing preschool teacher efficacy.

H2: Reflection sub factors have a positive impact on reducing stress related to understanding and managing children.

II. Methods

1. Survey Targets and Timing

The survey target was 211 preschool teachers (187 women, 23 men, and 1 unknown) who participated in the training, and I asked them to respond questionnaire online after the training. Because the training content was related to counseling mindset, it was not expected to affect the results of the questionnaire. I conducted the study in July 2021. Overall, 201 respondents were included in the analysis, excluding 6 respondents with incomplete responses and 4 who showed ceiling/floor effects in their responses. The respondents' mean age was 32.9 (SD = 9.15), and years of service ranged from 1 to 42 years, with a mean of 10.12 (SD = 7.77).

2. Survey Procedures

I distributed a series of individual scales online via Google Forms to participants recruited from an online survey panel. The survey was conducted in accordance with our university's code of ethics, which required informed consent before a respondent could complete the survey. Our ethical considerations encompassed the following: The first page of the survey included the following information: (1) I would strictly control each respondent's data and not report any respondent's personal information to any outside parties, (2) I would be using the survey results only for research purposes, including publishing findings in conference presentations and academic papers, (3) I would destroy all survey results after a certain period of time beyond the study's completion, and (4) every participant had the right to stop answering the questionnaire at any time with no consequences.

3. Survey Details

1) Face sheet

The Google Forms survey face sheet collected the following basic preschool teacher attributes: age, gender, years of service, experience with children with disabilities, time spent participating in annual training sessions, and time spent interacting with parents.

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2) Reflection

To measure preschool teacher reflection, I used Sugimura et al.'s[24] scale, which is divided into the three categories: reflection on the preschool teachers themselves(11 items),reflection on the children(10 items),and reflection through others(11 items). Respondents rated each item on a 5-point Likert scale ranging from 1 = rarely to 5 = always; higher scores indicate greater preschool teacher reflection.

For reflection on the preschool teachers themselves, six items were related to self-consideration (e.g., "After talking with children, I sometimes consider whether my arguments were appropriate") and five to self-consciousness (e.g., "When talking with children, I sometimes pay attention to my own attitude"). Reflection on children comprised six items on child analysis (e.g., "I sometimes think about my child's future growth") and four items on child detection (e.g., "I sometimes pay attention to my child's behavior when I am with my child"). For reflection through others, six items were related to using other people's information (e.g., "I sometimes revise my own childcare policy after talking with others about childcare") and five related to gathering information from others (e.g., "I sometimes watch carefully how children in other classes interact with preschool teachers").

3) Preschool teacher efficacy

I measured efficacy with Miki and Sakurai's childcare worker efficacy scale, which was based on the Teacher Efficacy Scale[31]. Respondents rated each scale on a 5-point Likert scale (1 = hardly agree, 5 = strongly agree); higher scores indicate higher personal efficacy.

4) Preschool teacher stress

To measure stress among children's preschool teachers, I used Akada's[16] Preschool Teacher Stress Rating Scale; specifically, for the purpose of this study, I extracted stress related to the understanding and managing children sub factor. Respondents answered these items on a 5-point scale ranging from 1 = very much to 5 = not at all; higher scores indicate higher stress.

To reduce the burden on the survey participants, I shortened the measurement scales as follows: I used 32 items with factor loadings of .40 or higher for reflection, 9 items with loadings of .40 or higher for stress related to understanding and managing children, and 7 items with loadings of .50 or higher for preschool teacher efficacy. The factor loadings for each item of the aforementioned scale were taken from the figures produced by previous studies.

The analysis was performed with IBM SPSS Statistics (version 25).

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III. Results

1. Reflection, preschool teacher efficacy, and stress related to understanding and managing children

Table 1 presents the means and standard deviations of each sub factor of reflection, preschool teacher efficacy, and child management stress.

<Table 1> Means and Standard Deviations

	M	*SD*
self-consideration	3.82	.61
self-consciousness	3.84	.62
child analysis	3.87	.53
child detection	3.95	.58
use of other people's information	3.71	.56
gathering information from others	3.15	.68
preschool teacher efficacy	3.08	.58
stress related to understanding and managing children	2.51	.57

2. Relationships between reflection and preschool teacher efficacy

To examine the relationships between the sub factors of reflection and preschool teacher efficacy, I calculated the correlation coefficients using the means for each sub factor. Table 2 presents these findings. Table 2 shows significant positive correlations of preschool teacher efficacy with self-consideration (r = .15, p< .05), self-consciousness (r = .32, p< .001), child analysis (r =.39, p< .001), child detection (r = .24, p< .001) and use of other people's information (r =.16, p< .05).

<Table 2> Correlations Between Reflection Sub factors, Preschool Teacher Efficacy, and Stress Related to Understanding and Managing Children

	self-consideration	self-consciousness	child analysis	child detection	use of other people's information	gathering information from others	stress related to understanding and managing children
preschool teacher efficacy	.15*	.32**	.39**	.24**	.16*	-.01	.44**
stress related to understanding and managing children	-.04	.11	-.17*	-.11	-.03	-.01	

**p<.001 *p<.05

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Next, to examine the effects on preschool teacher efficacy, I performed multiple regression with stepwise method using the scores of the six sub factors as the independent variables and preschool teacher efficacy score as the dependent variable; Table 3 shows these results. Regarding reflection on preschool teachers themselves, neither self-consideration nor self-consciousness had an effect on preschool teacher efficacy. For reflection on children, child analysis had a significant positive effect on preschool teacher efficacy (β=.528, p<.001) but child detection did not. Regarding reflection through others, gathering information from others had a significant negative effect on preschool teacher efficacy (β = −.262, p < .001) but using other people's information had no effect.

<Table 3> Multiple Regression Effects of Reflection Sub factors on Preschool Teacher Efficacy and Stress Related to Understanding and Managing Children

	self-consideration	self-consciousness	child analysis	child detection	use of other people's information	gathering information from others	F / R^2
preschool teacher efficacy	-.132	.096	.528***	.068	.023	-.262***	25.599 / .205***
stress related to understanding and managing children	.301**	.149	-.370***	.024	-.091	.043	7.936 / .272***

***p<.001 **p<.01

3. Relationships between reflection and stress related to understanding and managing children

The correlation coefficient findings in Table 2 show that in the relationships between the reflection sub factors and preschool teachers' stress related to understanding and managing children, child analysis had a significant negative correlation with child management stress (r = −.17, p< .05). In other words, preschool teachers who could analyze their children better reported less stress related to managing them.

Table 3 presents the multiple regression analysis with stepwise method findings for the contributions of each reflection sub factor on preschool teacher stress related to understanding and managing children. Table 3 shows that for reflection on preschool teachers themselves, self-consciousness had no effect on stress related to understanding and managing children but self-consideration had a significant positive effect (β = .301, p < .01). Regarding reflection on children, child detection had no effect on stress related to understanding and managing children but child analysis had a significant negative effect (β = −.370, p < .001). For reflection through others, neither using other people's information nor gathering information from others had an effect on reducing preschool teachers' stress related to understanding and managing children.

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IV. Discussion

1. Hypothesis 1 testing

In the multiple regression analysis of the six reflection sub factors and their contributions to preschool teacher efficacy, I found that child analysis (reflection on the child) had positive impacts on preschool teacher efficacy and gathering information from others (reflection through others) had negative effects. Therefore, H1 was partially supported.

Based on these findings, I connect child analysis to the ALACT model's awareness of essential aspects[29,30]. In other words, carefully observing children's behaviors and changes allows us to better understand their needs, and through cyclical assessment processes, such as the ALACT model, preschool teachers can formulate long-term childcare activities tailored to our understanding of our children's unique characteristics. It is possible that through this kind of reflection, the preschool teachers in this study can interact more smoothly with the children and promote high-quality, tailored activities such that these skills in turn increase the preschool teachers' efficacy.

Conversely, collecting information from others might not increase reflection through awareness of essential aspects of caring for children with special needs. Preschool teachers can collect information by carefully observing how other preschool teachers interact with their children; however, it is not always possible to meaningfully apply this information. Sometimes, observation of others can lead to unconscious comparisons and feelings of deficiency, and under emotional exhaustion, reflection becomes rumination. In turn, ruminations, which are motivated by threats and losses to the self[32], have negative impacts on self-efficacy and self-esteem[22], which could have led to the present results.

2. Hypothesis 2 testing

In the multiple regression analysis of the six reflection sub factors and their contributions to stress related to understanding and managing children, child analysis (reflection on children) had a negative impact on child management stress and self-consideration (reflection on preschool teacher themselves) had a positive impact. The higher the score on the "stress related to understanding and managing children" scale, the higher the stress. In other words, the results indicate that stress may be reduced by "child analysis," which has a negative impact on stress related to understanding and managing children, and that stress may be increased through "self-consideration," which has a positive impact on stress related to understanding and managing children. Thus, this finding partially supports H2.

From the aforementioned findings, I infer that when preschool teachers reflect as they analyze the children in their care, before, during, and after interactions with the children, their cyclical reflections increase their awareness of essential aspects of caring for the children. In turn, better understanding these essential aspects should allow for a more

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accurately assessment of the individual needs of children with special needs, which will increase the efficacy of caring for them. Preschool teachers' cyclical reflection processes also increase their overall experience and expertise, which could decrease the stress related to managing children with special care needs.

Conversely, and as was the case with preschool teacher efficacy, preschool teacher self-consideration did not have an impact on preschool teachers' stress related to managing their children with special needs. Self-consideration does not mean that preschool teachers consciously pay attention to their own words and actions; rather, it refers to their thinking about their own ways of being, the impacts of their words and actions on children, and their feelings in dealings with children. I contend that excessive self-consideration can lead to questioning one's abilities and a decrease in self-confidence and efficacy, which then makes the process of reflection on the learning process stagnant; it is thought that it became more and more difficult to carry out childcare activities. Given that Akada[16] found that preschool teacher efficacy alleviates preschool teacher stress, I think it is reasonable that the decreased efficacy and self-confidence from heightened self-consideration would likely increase stress related to caring for and managing children with special needs.

V. Conclusion and Recommendations for Future Studies

The aforementioned results suggest that among the acts of reflection performed by preschool teacher, "child analysis" can lead to cyclical reflection through awareness of essential aspects, such as the ALACT model proposed by Korthagen[29,30]. Furthermore, this kind of reflection may help preschool teachers acquire the skills to learn from their own experiences, improve their ability to continue growing, enhance their sense of efficacy, and reduce the stress caused by the difficulty of dealing with and understanding children with various issues and characteristics, including children with special needs.

However, although I did establish the relationships between preschool teacher reflection and efficacy and stress related to managing children with special needs, this study did not examine any potential mediating effects of preschool teacher efficacy in the relationship between reflection and stress related to understanding and managing children. Additionally, because preschool teachers' years of experience is an important indicator of expertise[18], it is necessary to further examine the relationships between reflection, efficacy, and stress and preschool teachers' background, including age, work experience, and experience in caring for children with disabilities.

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SHORT PAPER

Awareness of Care Staff who Participated in Bowel Dysfunction Care Training and the Actual State of Care - in the Tsugaru area of Japan -

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ABSTRACT

This study aimed to investigate the awareness of Bowel Dysfunction Care among care staff who participated in Bowel Dysfunction Care training and the actual state of Bowel Dysfunction Care. We conducted a questionnaire survey and collected data on the primary information on Bowel Dysfunction Care, the image of Bowel Dysfunction Care, and the Quality Indicators of Bowel Dysfunction Care. The sample included 17 participants (2 males and 15 females), with 9 participants (52.9%) having 10–19 years of experience, while 11 (64.7%) of them were nurses by profession. It was found that 15 participants had some worries or problems with Bowel Dysfunction Care (88.2%), 12 participants used the defecation checklist (70.6%), and 5 participants used the Bristol scale (29.4%). Although the trainees recognized Bowel Dysfunction Care as important and considered it rewarding, the average implementation rate of the Bowel Dysfunction Care Quality Indicators was 53.6% (SD=19.7). It was suggested that there is a need for educational support opportunities for acquiring knowledge and skills to improve the quality of Bowel Dysfunction Care.

<Key-words>
Bowel Dysfunction Care, constipation, older adults, care staff

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I. Introduction

With the rapid progression of the aging rate in Japan, by 2025, the baby boomer generation will be over 75 years. In a society where we are accustomed to living as much as possible with the purpose of maintaining the dignity and supporting independent living for the older adults, the construction of a community-based comprehensive care system is necessary. Moreover, this care system must be created according to the regional characteristics and should be based on the formulation and implementation of the long-term care insurance business plan, revised every three years[1].

To foster a dignified and independent lifestyle for older adults, the priority of solving problems related to dysuria is high. In general, older adults are more likely to experience constipation due to a decrease in gastric acid secretion, intestinal peristalsis, content transport rate, and water intake. Home care is often directed at bedridden older adults with various disabilities; however, it is observed that defecation disorders are found in 60% of the patients with severe physical disabilities[2]. A survey of home-visit nursing users reported that 66.2% had problems with defecation[3]. Independence of excretion promotes getting out of bed, leading to independence in daily life and an increment in the quality of life. It has been reported that excretion-related items influence returning home[4], and that relieving the burden of excretion care is helpful for caregivers, both at the facility and home[5,6].

However, it is not clear whether appropriate care is provided for excretion disorders. A survey conducted at the Long-Term Care Health Facility showed that this is because the degree of resolution of excretion care pertaining to constipation and incontinence is lower than that of diet, nutrition, pressure ulcer, and so on. Moreover, some reports reveal that more than half of the problems have not been solved, and the status quo remains unchanged[7]. On the other hand, it has also been reported that the implementation of an appropriate Bowel Dysfunction Care protocol leads to improvement of the Bowel Dysfunction condition, and that appropriate training is required to establish the Bowel Dysfunction Care protocol[8].

In the 2016 revision of medical fees, the "urination independence support addition " was newly established, while in the 2018 revision of nursing fees, "excretion support addition" was initiated. These newly established revisions exhibit the need to solve problems related to dysuria proactively and are observed as a national trend in supporting a multidisciplinary collaborative excretion care plan for promoting community-based comprehensive care. In contrast, in a learning needs survey of home care nurses, home terminal care[9] and chemotherapy for cancer patients[10] were ranked high, but no learning needs were found for excretion. Moreover, no excretion-related items were found in training themes of the fact-finding survey on education and training at home-visit nursing offices in Tokyo[11]. Although excretion is as typical as breathing, it is not recognized as a problem that requires the intervention of home care staff. Furthermore, regarding

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training for home care workers, it is challenging to conduct training outside the workplace, as moving, especially in small facilities, is time-consuming. Moreover, the attendance rate for part-time (other than full-time) is low, even for in-work training[12]. Thus, these issues need to be addressed.

Most of the training is often conducted in urban areas in Japan, therefore we held a workshop on intestinal Bowel Dysfunction Care at the Home Care Research Institute in a region called Tsugaru area. The purpose of this study was to investigate the awareness of trainees regarding intestinal Bowel Dysfunction Care and the actual condition of Bowel Dysfunction Care, in order to use it as basic data for business continuity.

II. Purpose of the Research

The purpose of this study was to investigate the awareness of Bowel Dysfunction Care by the care staff who participated in the Bowel Dysfunction Care training and the actual state of Bowel Dysfunction Care.

Ⅲ. Research Method

1. Definition of terms

1) Care Staff

Care staff was defined as those involved in excretion care, such as nurses and certified care workers.

2) Bowel Dysfunction Care

Bowel Dysfunction care was defined as care for regaining comfortable defecation for a condition that causes constipation, diarrhea, fecal incontinence, or difficulty in defecation.

2. Research Design

This was a quantitative, descriptive study.

3. Participants

The participants of this study were 17 attendees who volunteered to participate in our study, of the 25 attendees of the "One-Day Introductory Bowel Dysfunction Care Course" sponsored by the Hirosaki University of Health and Welfare Home Care Research Institute. Consent was sought from all the participants.

4. Study Period

The study was conducted from August 1st-September 30th, 2019

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5. Data Collection

1) Demographic details

The following demographic details were sought from the participants: gender, age, occupation, years of experience, and type of work.

2) Basic information about Bowel Dysfunction Care

Basic information on Bowel Dysfunction Care included whether the participants had any concerns about Bowel Dysfunction Care, the number of users at work, the number of users by coping method when constipation, whether they used the defecation checklist, and the Bristol scale. Moreover, it was collected such as the methods of confirming the presence or absence of defecation, the occupancy rate of Bowel Dysfunction Care work, sharing information between care staff, grasping the amount and shape of defecation, and sharing information by free description. In addition, the occupancy rate of Bowel Dysfunction Care work was collected as the ratio of Bowel Dysfunction Care to the total work by subjective free description.

3) Image of Bowel Dysfunction Care

Regarding the image of Bowel Dysfunction Care, it was used the semantic differential method (SD), which is a bipolar rating scales composed of “Bright-Dark” indicated by adjective pairs. The nine-items adjective pair was made by ourselves with reference to previous research[13-15]. The score of the SD method for each adjective pair was one point for the most positive option and five points for the most negative option, and the higher the number, the stronger the negative image. The SD was introduced and mainly developed by the US psychologist Charles E. Osgood [16,17] and has already been used in many studies as the image analysis method[18,19].

4) Quality Indicators of Bowel Dysfunction Care

The Quality Indicators of Bowel Dysfunction Care focused on the care process of home-visit nursing by Tsujimura et al.[20] and was reorganized by the authors for care workers in the community, referring to the one developed for home-visit nurses. The assessment was divided into 9 indicators, interventions into six areas and 22 indicators, general care into 7 indicators, emergency response into 2 indicators, lifestyle-related adjustment, or preventive care into 5 indicators, fecal incontinence care into 5 indicators, family support into 3 indicators, and follow-up into 3 indicators. The Quality Indicators of Bowel Dysfunction Care included a total of 34 indicators. The responses were sought using "Yes," if it was in line with the usual practice and "No," if not.

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6. Data Analysis Method

Descriptive statistics were performed. Data was analyzed by using SPSS Statistics Version 25.0 for Windows, (IBM Inc., Tokyo, Japan). The self-evaluation of the Quality Indicators was given 1 point if “Yes” and 0 points if “No.” The total score was 34 points. Subsequently, the implementation rate of "Yes" for each index was calculated.

7. Ethical Considerations

The participants were explained, both in writing and verbally, about the purpose, method, respect for free will, the guarantee of anonymity, and publication of survey results. Subsequently, informed consent was sought for research cooperation. The survey used in this study was conducted with the approval of the Research Ethics Committee of Hirosaki University of Health and Welfare (approval number: 2019-4).

IV. Results

1. Demographic Details

As shown in <Table 1>, a total of 17 participants (2 males; 15 females) who volunteered and gave their consent for research cooperation were included in our study. Of them, eight participants were in their 40s (47.1%), followed by four people in their 30s and 50s (23.5%). There were 11 nurses (64.7%); 3 certified care workers (17.4%), and a caregiver, care manager, and health nurse (5.9%). At least nine participants had the highest years of experience of 10-19 years in their respective professions. The number of affiliated facilities was the highest with seven visiting nursing stations.

2. Basic Information about Bowel Dysfunction Care

Basic Information about Bowel Dysfunction Care is shown in <Table 2>, 88.2% had some worries or problems regarding Bowel Dysfunction Care. The occupancy rate of Bowel Dysfunction Care was 10%, with four people (23.5%), 30%, and three people (17.6%). Overall, 12 participants (70.6%) used the defecation checklist, whereas 5 participants (29.4%) did not. Moreover, about 5 participants (29.4%) used the Bristol Stool Scale, 11 participants (64.7%) did not, and 1 participant (5.9%) chose not to respond.

Regarding specific worries and issues related to Bowel Dysfunction Care, there were five cases related to reviewing one's Bowel Dysfunction Care, practical procedures, and vague daily worries. When the defecation checklist was not used, it was directly noted in the medical record, and the information on the presence or absence of defecation and the amount of defecation was shared. When not using the Bristol scale, the amount of defecation was estimated based on the feeling of the person involved at that time.

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<Table 1> Demographic Details

Item		n	%
Gender	Male	2	11.8
	Female	15	88.2
Age (in years)	30s	4	23.5
	40s	8	47.1
	50s	4	23.5
	60s and above	1	5.9
Occupation	Nurse	11	64.7
	Care worker	3	17.4
	Caregiver	1	5.9
	Care manager	1	5.9
	Public health nurse	1	5.9
Years of Occupational Experience	3-9years	2	11.8
	10-19years	9	52.9
	20-29years	4	23.5
	30years and above	2	11.8
Affrication	Hospital	1	5.9
	Home-visit nursing station	7	41.2
	Long-Term Care Health Facility	2	11.8
	Nursing home	3	17.6
	Paid nursing home	1	5.9
	Dental clinic	1	5.9
	Group home for dementia	2	11.8

<Table 2> Basic Information about Bowel Dysfunction Care

Item	-	n	%
Worries or Challenges	yes	15	88.2
	no	2	11.8
Defecation care occupancy	5%	2	11.8
	10%	4	23.5
	20%	2	11.8
	30%	3	17.4
	40%	2	11.8
	50%	2	11.8
	70%	1	5.9
	N.A.	1	5.9
Defecation checklist	yes	12	70.6
	no	5	29.4
Bristol Stool Scale	yes	5	29.4
	no	11	64.7
	N.A.	1	5.9

N.A.: not applicable

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3. Dealing with Constipation

Dealing with Constipation is shown in <Table 3>. Since the number of users of the facility to which the participants belonged ranged from 9 to 150, the content of coping methods for constipation was in ratio with the total number of facility users. At the facility where 11 participants (61.1%) belonged, the ratio of taking laxatives was the highest as a coping method for constipation. One person belonged to a facility where the same number of laxatives and suppositories were used, whereas two people belonged to a facility with a higher rate of enema than laxative usage.

<Table 3> Dealing with Constipation at the participant's affiliation (Multiple answers)

Participants	Users	Laxative		Enema		Suppository		Stool extraction	
		n	%	n	%	n	%	n	%
No.1	9	8	88.9	0	0.0	0	0.0	0	0.0
No.2	9	5	55.6	0	0.0	0	0.0	0	0.0
No.3	10	2	20.0	1	10.0	2	20.0	0	0.0
No.4	14	6	42.9	2	14.3	0	0.0	1	7.1
No.5	16	8	50.0	4	25.0	0	0.0	3	18.8
No.6	29	24	82.8	1	3.4	0	0.0	0	0.0
No.7	30	18	60.0	10	33.3	1	3.3	6	20.0
No.8	35	15	42.9	15	42.9	0	0.0	3	8.6
No.9	39	30	76.9	2	5.1	0	0.0	2	5.1
No.10	42	40	95.2	3	7.1	0	0.0	5	11.9
No.11	42	40	95.2	3	7.1	0	0.0	5	11.9
No.12	50	35	70.0	1	2.0	1	2.0	0	0.0
No.13	70	36	51.4	22	31.4	1	1.4	21	30.0
No.14	88	30	34.1	60	68.2	19	21.6	0	0.0
No.15	88	30	34.1	60	68.2	19	21.6	0	0.0
No.16	150	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
No.17	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
		Mean	60.0		21.2		4.7		7.6
		SD	23.8		23.2		8.6		9.4

N.A.: not applicable, SD: standard deviation

4. Image of Bowel Dysfunction Care

In <Table 4-1 > and <Table 4-2> shows the descriptive statistics on Image of Bowel Dysfunction Care of the Semantic Differential. Everyone had the image of "important" for defecation care. In addition, more than half of the items ("fun," "rewarding," "like," and "not difficult") had a positive image of defecation care. In other words, it was found that five out of nine items had a positive image. On the other hand, 58.8% had a negative image of "difficult" for defecation care.

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<Table 4-1> Image of Bowel Dysfunction Care

Positive -Negative	MEAN	SD
Bright -Dark	2.47	0.87
Fun - Spicy	2.29	0.92
Worthwhile - Bored	1.76	0.75
Likes - Dislikes	2.29	0.69
Not Difficult - Difficult	2.82	1.43
Simple - Complex	3.94	0.90
Clean - Dirty	3.29	0.69
Important - Unimportant	1.00	0.00
Relaxing - Stress	2.76	1.03

Data are shown mean and standard deviation

<Table 4-2 > Image of Bowel Dysfunction Care

Positive	Agree (%)	Agree a little (%)	Neither (%)	Agree a little (%)	Agree (%)	Negative
Bright	17.6	23.5	52.9	0.0	5.9	Dark
Fun	23.5	29.4	41.2	0.0	5.9	Spicy
Worthwhile	41.2	41.2	17.6	0.0	0.0	Bored
Likes	11.8	47.1	41.2	0.0	0.0	Dislikes
Not Difficult	17.6	35.3	11.8	17.6	17.6	Difficult
Simple	0.0	0.0	41.2	23.5	35.3	Complex
Clean	0.0	5.9	58.8	29.4	5.9	Dirty
Important	100.0	0.0	0.0	0.0	0.0	Unimportant
Relaxing	17.6	5.9	64.7	5.9	5.9	Stress

5. Quality Indicators of Bowel Dysfunction Care

Quality Indicators of Bowel Dysfunction Care is shown in <Table 5>. The average score of the total of 34 points for the Quality Indicators of Bowel Dysfunction Care was 18.2 (SD =8.9). The average implementation rate for each index of Bowel Dysfunction Care was 53.6% (SD=19.7).

The Index No. 2 [Contents related to information gathering for understanding the cause of users with defecation disorders] in the assessment had an implementation rate of 100%. The indicators with an 80% implementation rate were general care interventions. For two indicators: No. 13 [Consideration for shame when implementing Bowel Dysfunction Care] and No. 15 [Drug adjustment for defecation control, and so on], the implementation rate was 88.2%. In contrast, the consultation showed 13 indicators with an implementation rate of 50% or less. Furthermore, the lowest four indicators had an implementation rate of 30% or less. Indicator No. 23 [Advice on improving the defecation environment if necessary] had an implementation rate of 17.6%, No. 28 [Consultation with WOC when necessary due to fecal incontinence] of 23.5%, No. 32 [Response to unification and continuation of Bowel Dysfunction Care methods] of 29.4%, and No. 33 [Evaluate the care provided by setting a deadline] of 29.4%.

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<Table 5> Implementation rate in the Quality Indicators of defecation care (n=17)

		YES		NO	
	Indicator item	n	%	n	%
Assessment					
1	Possibility of defecation disorder	9	52.9	8	47.1
2	Clarification of the cause	17	100.0	0	0.0
3	Request for defecation record	9	52.9	8	47.1
4	Defecation pattern	11	64.7	6	35.3
5	Physical assessment	12	70.6	5	29.4
6	Judgment and proposal of cause and mechanism	9	52.9	8	47.1
7	Presence or absence of overflow fecal incontinence	6	35.3	11	64.7
8	Consultation with attending physician	8	47.1	9	52.9
9	Needs and impact on life	10	58.8	7	41.2
Intervention (general)					
10	Explanation of cause and mechanism	6	35.3	11	64.7
11	Agreement on control method	6	35.3	11	64.7
12	Searching for control methods	11	64.7	6	35.3
13	Consideration for shame	15	88.2	2	11.8
14	Mental support	8	47.1	9	52.9
15	Consultation with attending physician about drug adjustment	15	88.2	2	11.8
16	Consultation with attending physician about applicable requirements such as enema	6	35.3	11	64.7
Intervention (emergency)					
17	Explanation of signs of dehydration and ileus and advice on how to deal with them	10	58.8	7	41.2
18	Prevention of infection during infectious diarrhea	11	64.7	6	35.3
Intervention (adjustment / prevention)					
19	Advice on fluid intake	14	82.4	3	17.6
20	Advice on meal content	11	64.7	6	35.3
21	Advice on exercise	11	64.7	6	35.3
22	Advice on defecation promotion care during constipation	9	52.9	8	47.1
23	Advice on defecation environment adjustment and consultation with OT / PT	3	17.6	14	82.4
Intervention (fecal incontinence)					
24	Practical care for fecal incontinence	9	52.9	8	47.1
25	Care and prevention of overflow fecal incontinence	6	35.3	11	64.7
26	Defecation guidance during functional fecal incontinence	13	76.5	4	23.5
27	Proposals for care to reduce skin damage	12	70.6	5	29.4
28	Consultation with a specialist on skin disorders	4	23.5	13	76.5
Intervention (family support)					
29	Individual support	6	35.3	11	64.7
30	Proposal of equipment	8	47.1	9	52.9
31	Introduction of public support system	7	41.2	10	58.8
Follow up					
32	Guidance on defecation care	5	29.4	12	70.6
33	Reassessment of care	5	29.4	12	70.6
34	Continuous care for the best defecation status	8	47.1	9	52.9
	Mean		53.6		46.4
	SD		19.7		19.7

OT: Occupational Therapist, PT: Physical Therapist, SD: standard deviation

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V. Discussion

1. Participants of Bowel Dysfunction Care Training

Most of the trainees were nurses working at home-visit nursing stations; however, there were also nurses and nursing staff working at special nursing homes, nursing homes, and group homes for the older adults. This shows that the training was recognized by many occupations and fields. In addition, nine participants (52.9%) had 10-19 years of experience, based on which they can be judged to be skilled in their profession; however, they too had worries and problems related to Bowel Dysfunction Care. Benner says that nurses always have a desire to be satisfied even when they become an expert[21]. Moreover, it was seen that nurses desired a sense of satisfaction regarding Bowel Dysfunction Care.

Regarding the image of Bowel Dysfunction Care, all the trainees answered that Bowel Dysfunction Care was significant, with 14 participants (82.4%) recognizing that although challenging, it is worthwhile. However, ten participants (58.8%) found the care was difficult. Based on this and as observed in previous research, it was inferred that sharing information and working together as a team was important in Bowel Dysfunction Care, rather than working on improving the skills individually.

2. Actual Condition of Bowel Dysfunction Care

In the actual state of Bowel Dysfunction Care, it was found that 5 participants did not use the defecation checklist, whereas 11 participants did not use the Bristol scale. As a primary method of Bowel Dysfunction Care, it was found that it is necessary to have people understand the importance of using the defecation checklist, the Bristol scale, and informing the care workers. In addition, the average use of laxatives was 60.0% (SD=23.8) in the content of Bowel Dysfunction Care, like the fact-finding survey on defecation of the older adults reported from 2006–2010[22-25]. This indicated that there was no change in the situation that was biased towards the use of laxatives as a coping method for constipation.

3. Quality of Bowel Dysfunction Care for Care workers based on the Implementation Rate of the Quality Indicators of Bowel Dysfunction Care

The average score of self-evaluation using the Quality Indicators of Bowel Dysfunction Care was 18.2 points, with an average implementation rate of 53.6%, as found from the survey conducted by Tsujimura et al.[26]. The participants had attended the Bowel Dysfunction Care training, and 15 of 17 participants had concerns related to Bowel Dysfunction Care. Although they were consciously involved in Bowel Dysfunction Care on a daily, the Quality Indicators of Bowel Dysfunction Care showed that the quality of care was low. Indicator No. 23 [Advice on improving the defecation environment, if necessary], which had the lowest implementation rate, is the most general support content. Since the number of participants was only 17, it is possible that they did not encounter the subjects who had to implement the contents of the quality indicators, rather than not implementing the necessary indicators for the subjects.

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VI. Limitations of This Study and Future Challenges

Since the implementation rate of the Quality Indicators of Bowel Dysfunction Care was determined before the training, it is necessary to evaluate the change in the implementation rate of the participants after the training. In addition, since the results are based on a limited sample of 17 participants, regular Bowel Dysfunction Care training should be conducted to raise awareness of the Quality Indicators of Bowel Dysfunction Care and improve the quality of Bowel Dysfunction Care in this region.

VII. Conclusion

By investigating the awareness of Bowel Dysfunction Care among the care staff who participated in the Bowel Dysfunction Care training and the actual state of Bowel Dysfunction Care, the trainees recognized that Bowel Dysfunction Care was important and regarded it as rewarding. However, we found that the implementation rate of the Quality Indicators of Bowel Dysfunction Care was low. Based on our findings, we suggest educational support opportunities for acquiring knowledge and skills to improve the quality of Bowel Dysfunction Care.

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SHORT PAPER

Questionnaire Survey on the Prevalence of Selective Mutism at Special Needs Schools for Students with Intellectual Disability in Japan

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ABSTRACT

The aim of this study was to understand the prevalence and support status of students showing symptoms of selective mutism in special needs schools for students with intellectual disabilities. A questionnaire was sent to the principals of 12 special needs schools for students with intellectual disability in prefecture Akita, asking whether they had students showing symptoms of selective mutism and the kind of support provided. The results showed that six of the 12 schools had students showing symptoms of selective mutism, with a prevalence rate of 1.05%. Types of support provided included speech therapy and environmental adjustments. The results revealed that: 1) the prevalence of selective mutism is higher in special needs schools than in regular elementary and middle schools, and 2) better support is provided in special needs schools than in regular elementary and middle schools.

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Selective mutism, special needs school, questionnaire survey, prevalence, intellectual disability

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I. Introduction

Selective mutism (SM) is a condition in which a child has difficulty speaking in social situations such as school and kindergarten but is able to speak at home. According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), SM falls under the category of anxiety disorders and is more likely to occur in younger children.[1)]

Cho et al. reviewed domestic and international literature on the prevalence of SM and pointed out that the prevalence rate varied depending upon the subject and method of study, with estimates ranging from 0.02% to 1.89%.[2)] Previous studies on the prevalence of SM in Japan include those by Hisada et al. and Muramoto.[3,6)] Hisada et al. conducted a survey of children enrolled in public elementary schools in Kobe City, and found that SM prevalence was 0.15% and the male–female ratio was 1:1.7, indicating a higher prevalence among girls.[3)] Muramoto conducted a survey of public elementary and middle schools in the Kamikawa district and found that the prevalence of SM was 0.03% in elementary schools and 0.04% in middle schools.[6)]

There have been no studies on the prevalence of SM in special needs schools for students with intellectual disabilities. This is because it is impossible to make a clear distinction between the speech difficulty in social situations and communication difficulty due to intellectual disabilities. However, Hisada et al. pointed out that, if children with intellectual disability speak significantly less at school than at home, SM is likely to be present.[3)] Kristensen pointed out that 68.5% of students with SM are suspected to have some type of developmental disability.[4)] Kumachi et al. found that children with developmental disabilities without intellectual developmental delays were also enrolled in special needs schools for students with intellectual disabilities nationwide.[5)] These findings suggest that special needs schools for students with intellectual disability have students with a wide variety of conditions, and some of them have SM symptoms.

This study aimed to clarify the prevalence of SM and the corresponding support system by conducting a survey of special needs schools for students with intellectual disabilities in prefecture A.

II. Methods

1. Survey Participants

In mid-June 2021, a written survey participation request was sent to the principal of 12 special needs schools for students with intellectual disability in prefecture Akita. A questionnaire was sent to the section heads of the elementary, middle school, and high school sections in each school, and a response from each section was requested. For easy understanding, the SM condition was described on the cover page of the questionnaire, based on the diagnostic criteria of DSM-5. Specifically, we included the following: SM

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involves 1) being able to talk at home but unable to talk in social situations such as school, 2) such behavior lasting for more than one month, and 3) such behavior not being due to other disorders such as autism spectrum disorder. This survey focused on the assessment by the teachers on whether a student had SM, and not based on previous medical diagnosis. The return date was set to mid of July 2021.

All 12 schools responded (100% response rate). All the responses were included for the analysis because there were no omissions or missing values.

2. Ethical consideration

This study was approved by the research ethics committee of the Institution that the authors belong to. In the letter requesting participation, two points were clearly stated: "Received responses will be processed statistically" and "No information regarding schools or students' identity will be published, and privacy will be strictly protected." The decision to participate was left to the schools' discretion.

3. Details of the survey

a) Number of students in each department

We asked for the number of students in each department and the number of males and females.

b) Whether there are students with SM

We asked whether there are students with SM. Only those who answered "Yes" were asked to answer the following questions.

c) Number of children with SM

We asked for the grade and sex of the child with SM. If there were more than two people, we asked for separate answers about each child.

d) Students' background

We asked for the background of the students with SM, who joined the special needs school.

e) Details of types of support

We solicited open-ended responses regarding the support provided to students with SM.

f) Issues

We ended with an open-ended question on the issues faced in providing support.

4. Analysis

For the items in (e), the descriptions were classified into categories based on Yamaura's Qualitative Synthesis Method (KJ Ho method).[8] Items in (f) was not categorized due to a small number of responses.

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III. Results

1. The number of students with SM and the number of schools they were enrolled in

Six out of 12 schools (50%) had students with SM. The number of students with SM was 12 out of a total of 1,140 students across all 12 schools with a prevalence rate of 1.05%.

2. Number of students with SM by department

Among 295 children across elementary school sections (206 boys and 89 girls), three students (three girls) had SM, with a prevalence of 1.02%. Among 331 students (217 boys and 114 girls) in the middle school sections, there were two students with SM (one boy and one girl), with a prevalence of 0.60%. Of a total of 514 students (344 boys and 170 girls) in the high school sections, seven students (four boys and three girls) had SM, with a prevalence of 1.36%.

3. Students' background before entering the school

Table 1 shows the background of students with SM before entering the school. Each of the three students from the elementary section had been in the respective school since the beginning of their education. The two students from the middle school section had joined after completing a regular class and a special support class at the elementary level. The seven high school students were either from the middle school section of the respective special needs school (two students), regular classes of other middle schools (three students), or other middle school special support classes (two students).

<Table 1> Status of students with SM

no	Grade	Gender	Background before entering the school
1	Lower grades in the elementary school department	Female	Has been in the special support school since the start of school
2	Middle grades in the elementary school department	Female	Has been in the special support school since the start of school
3	Middle grades in the elementary school department	Female	Has been in the special support school since the start of school
4	First grade in the middle school department	Male	Entered after a regular class in the elementary school
5	First grade in the middle school department	Female	Entered after a special support class in the elementary school
6	First grade in the high school department	Male	Entered after a middle school department in the special support school
7	First grade in the high school department	Female	Entered after a middle school department in the special support school
8	First grade in the high school department	Female	Entered after a regular class in the middle school
9	First grade in the high school department	Male	Entered after a regular class in the middle school
10	Second grade in the high school department	Male	Entered after a special support class in the middle school
11	Second grade in the high school department	Female	Entered after a regular class in the middle school
12	Third grade in the high school department	Male	Entered after a special support class in the middle school

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4. Types of support

Twenty-six cards on types of support were used. These were broadly categorized into speech therapy and environmental adjustments (Table 2). The followings are descriptions of each item.

Support for speech (n=18) included providing means of expressing intention and confirming the student's intentions by exchanging information with the guardian. The means of expressing intentions included using communication cards, using written communication, confirmation of intentions by movements and facial expressions, and the providing options.

Environmental adjustments (n=8) included devising and performing activities with a teacher with a good rapport. These included repeating the same activities, organizing into small groups, and providing options for activities.

<Table 2> Descriptions of support for students with SM

Broad categories	Medium Category	Small category
Support for speech (n = 18)	Providing means of expressing intention (n = 16)	Using communication cards (n=6)
		Confirming intentions through movements and facial expressions (n=5)
		Using written communication (n=3)
		Presenting options (n=2)
	Confirming student's intentions (n=2)	Confirming the student's intentions by exchanging information with the guardian (n=2)
Environmental adjustment (n = 8)	Devising activities (n=6)	Repeating the same activity (n=3)
		Organizing into small groups (n=2)
		Providing options for activities (n=1)
	Doing activities with a teacher (n = 2)	Doing activities with a teacher (n = 2)

5. Issues

Issues included the following three points: 1) worry about whether the students' future employers would be understanding; 2) difficulty dealing with students' erratic behavior changes as per the situation; and 3) inability to use alternate forms communication other than writing.

IV. Discussion

Results showed that the prevalence of students with SM in special needs schools was 1.06%. This number was higher than the survey results on the prevalence of Muramoto and Kusunoki.[3,6]. Section-wise prevalence was at highest for high school, followed by elementary and middle schools. As for their background before entering the school, about half of the seven high school students came from regular classes of middle schools. This suggests that SM symptoms may be one of the factors in choosing a high school, resulting in a high prevalence of students with SM in the high school sections.

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Support for students with SM in elementary and middle schools is not provided sufficiently. For example, Naruse and Takahashi conducted a survey of elementary school teachers on their interactions with children having SM. They pointed out that about 60% of the teachers had no knowledge of SM, and that in the actual course of teaching, many used either of the two opposite approaches: "actively involved with the student" or "wait until the student talks."[7] This study revealed that support for speech and environmental adjustments are being implemented in special needs schools. In the former, support was provided to confirm intentions without speech, such as presenting options and using communication cards. In the latter, support was provided to help them feel safe and comfortable, by organizing them into smaller groups and repeating the same activities. Thus, it seems that special needs schools are providing more support for students with SM to adjust to school life than other types of schools. However, no support was provided to improve the symptoms of SM, such as encouraging speech and expanding the means of communication. Such support has been provided mainly at rehabilitation institutions and universities, but rarely at schools. In the future, schools and third-party organizations must work together to provide support for children with SM to help them adjust to school life and to improve their symptoms.

The present study revealed that the prevalence of students with SM was higher in special needs schools compared with that of regular elementary and middle schools, and that support was provided to help students adjust to school life. This study focused special needs schools for students with intellectual disability in prefecture A. Since the survey was conducted in a limited number of schools, it was not possible to conduct a detailed analysis on the validity of the prevalence, the background before entering the school, and the issues in providing support. We plan to verify these points by conducting a large-scale survey, and examine the types of support required for each section.

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Review Article

The Current State and Tasks of Employment Policy for Persons with Disabilities in Korea

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ABSTRACT

The purpose of this study is to present the task of the employment policy for individuals with disabilities through the analysis of the current situation of employment policy for people with disabilities and the application cases of local governments in Korea. The Ministry of Health and Welfare, as well as the Ministry of Employment and Labor, have collaborated to design an employment policy for person with disabilities. Recently, several central administrative departments including the Ministry of Education, the Ministry of Agriculture, Food and Rural Affairs, the Ministry of SMEs and Startups, and the Ministry of Culture, Sports, and Tourism have implemented employment policies for people with disabilities directly or indirectly. Based on the results of this study, the policy directions for persons with disabilities were presented to invigorate employment and economic activity.

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I. Introduction

1. Changes in the disabled population and characteristics of the disability employment policy

Korean official disabled population is currently estimated by the disabled person registered administratively, and the hiring policy and welfare policy have been promoted for the registered disabled person. The Ministry of Health and Welfare, as well as the Ministry of Employment and Labor, have collaborated to design an employment policy for person with disabilities. Recently, several central administrative departments including the Ministry of Education, the Ministry of Agriculture, Food and Rural Affairs, the Ministry of SMEs and Startups, and the Ministry of Culture, Sports, and Tourism have implemented employment policies for people with disabilities directly or indirectly. This study presents the current state and tasks of the central government's employment policy for person with disabilities in 2021 and examines the application cases of related local governments.

The research results of the Korea Employment Agency for the Disabled in 2020 demonstrate that two implications are derived by predicting the trend based on changes in the disabled population with registered disabled people[1)].

First, from the standpoint of employment policy and labor force, one of the biggest characteristics of the change in the disabled population is that “disabled workers” have reduced rapidly. Due to intervention policy, the number of registered disabled people has not increased much in recent years, and the registered disabled people are senior in most cases. Also, the increase in the number of people with mild disabilities is mostly occurring in seniors. The number of persons with disabilities aged 15 to 64, who are engaged in economic activity, has decreased significantly. The tiny increase of the disabled population consists of severely handicapped people such as young people with developmental disabilities. These changes show only a few disabled people can work from the existing standpoint or be subject to the existing disability employment policy, and the number of them is reducing. Therefore, it is suggested that the standard and notion of disability employment policy and service should be examined. For instance, a similar change is found in the case of Jeonju city, which is highly interested in hiring people with disabilities. Due to the strengthening of mandatory employment of individuals with disabilities, the employment of people with disabilities in the private sector, as well as the public sector, expanded. As a result of expansion, disabled people with appropriate abilities can choose jobs and a job offer from a company is increasing more than the disabled people who seek their jobs. Moreover, if vocational training is necessary based on vocational evaluation among the disabled employments, related information is provided to them by associating with Jeonju Customized Training Center, Jeonbuk Development Disabled Training Center, and Jeollabukdo Disabled Welfare Center Vocational Training Team. Also, they provide a training opportunity for severely handicapped people living in Jeonju city in connection with Happy Houses, Life Protection Workshops, and Jeollabukdo Disabled People's

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Protection Workshops located in Jeonju City and Wanju County[2]. Therefore, it is important to expand the customized vocational training infrastructure for the improvement of disabled vocational ability, considering the demand of the companies that want to hire people with disabilities.

Based on the information on July 2020, Employment Agency for the Disabled operates 5 Vocational Competency Development Center, 7 Customized Training Center, 13 Developmental Disability Training Centers, and 53 commissioned training centers for people with disabilities. Compared to the early institution of compulsory employment system for persons with disabilities, the improvement of the training institutions for people with disabilities is impressive. The increase in accessibility by region and the expansion of customized training centers under the demand for industrial training were the appropriate response to the needs of consumers.

Reflecting the increasing trend of developmental disabilities people under the age of 30, the expansion of the developmental disability training center to the whole country was also a suitable response to the characteristics of the change of people with disabilities. According to the study by the Korea Employment Agency for the Disabled, due to the expansion of vocational training infrastructure, the employment rate of training graduates is higher than 90%[1].

Second, people with disabilities are divided into two groups. One group is small-scale low-age severely handicapped groups focusing on developmental disabilities. The other group is large-scale elderly mildly handicapped groups focusing on physical disability, hearing, brain lesions, and vision. The two groups have distinct population characteristics, employment characteristics, and service needs. Based on it, detailed personalized policy development and effective resource allocation, not the simple and uniform policy, are the vital policy tasks. With these changes of the era, the employment policy for the severely handicapped and the elderly, and mildly disabled should be included in Jeonju Disability employment policy. For the severely handicapped employment policy, it is necessary to establish a labor market policy associated with the Jeonbuk Developmental Disability Training Center of the Employment Agency for the Disabled. In the employment policy for the elderly and mildly disabled, policy measure should be prepared through the active use of the Ministry of Health and Welfare's job program for people with disabilities.

In 2021, as the main task, the central government's employment policy for the disabled has set up a customized employment policy for the developmentally disabled and a policy for the employment of the elderly with disabilities by aging. As employment policy was oriented by type of disability after the government's special employment policy for the developmentally disabled, the further considering policy is that customized employment policy such as the audiovisual disabled and the mentally disabled will be established in the future.

To begin with, in the central government's employment policy for people with developmental disabilities, first, it promotes the expansion of vocational training

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preparation courses[3]. Through preparation courses in the developmentally disabled training center, it provides self-reliance skills training, vocational exploration, vocational interest education, and vocational literacy education. It is a support for severely disabled people who are unable to enter the vocational training course due to a lack of cognitive and communication skills. In the case of Jeonju city, they should actively utilize the Jeonbuk Training Center for the Developmentally Disabled. Second, for reinforcing the method of developmental disability support employment project, it plans to provide sufficient training opportunities considering the characteristics of the developmentally disabled people who take a long time to adapt to the workplace. In other words, the training period for employment stabilization is 7 weeks but can be extended up to 1 year considering the characteristics of disability based on case analysis meetings and evaluation. The training process for job advisors and labor support for developmental disabilities is expanded. Third, from the perspective of a consumer, the government is trying the overall reorganization of job coach, work instructor, and labor supporter so that they can receive human support services for people with disabilities. A labor supporter is an external employee appointed to perform ancillary duties due to a disability of the severely disabled who possesses the ability to perform core tasks, and help the disabled in the smooth performance of their duties. A job coach is an internal and external employee who supports job guidance, workplace adaptation, and emotional management during, on-the-job training of supported employment programs, and post- employment adjustment. A work instructor refers to the person who leads the work by appointing internal staff to help the severely disabled adapt to the working environment.

Second, as part of the government's policy for the elderly with disabilities, the government provides intensive service by selecting strategic agencies (100 places) to expand jobs for the disabled, focusing on public institutions and local small and medium-sized enterprises. They develop mobile game monitors, job managers, and hospital assistants as senior specialist positions in conjunction with financial support jobs and related organizations. Also, they offer appropriate training and employment services. As an example of job provision for the elderly, the Daegu Metropolitan City Office of Education hired 13 elderly disabled people as a sanitation worker in 2018 through a job fair organized by Daegu Metropolitan City and the Daegu Social Welfare Center Association. In 2019, the Korea Land and Housing Corporation established 'A helper for the elderly who are alone,' as a specialist facility for the elder disabled, and hired 64 individuals with disabilities[3].

The purpose of this study is to present the task of the employment policy for individuals with disabilities through the analysis of the current situation of employment policy for people with disabilities and the application cases of local governments. Based on the results of this study, the policy directions for persons with disabilities were presented to invigorate employment and economic activity.

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2. Research Method

In order to find out the current status of employment policy for individual with disabilities, the results of previous studies were analyzed and arranged in a literature review method from December 2020 to March 2021. Existing research results such as the mandatory employment quota system, invigoration of vocational training, and project associated with disabled employment of the central administrative department were reviewed.

Furthermore, on January 14, 2021, a focus group interview was conducted with seven vocational rehabilitation professionals concerning the employment project and policy for people with disabilities. Through these results, the current status of employment, infrastructure problems, and future employment directions for individual with disabilities were presented.

II. The Ministry of Health and Welfare Employment Policy for Persons with Disabilities

The Ministry of Health and Welfare is the main department of the disabled policy, and they implement a job policy for people with disabilities, one of the government's financial support jobs. Also, the vocational rehabilitation project for individuals with disabilities is the core of their employment policy for the severely disabled.

1. Invigorating vocational rehabilitation facilities for people with disabilities

Vocational rehabilitation facilities for persons with disabilities are divided into three types based on the working ability of disabled workers: vocational adjustment training facilities, sheltered workshops, and occupational facilities. To invigorate vocational rehabilitation projects, strengthening vocational training in vocational rehabilitation facilities is needed. Especially, job function improvement training and social adjustment training are significant. Supporting rehabilitation professionals and developing vocational training programs are necessary to invigorate the project. The study of the Employment Agency for the Disabled in 2018 showed that as the priority for effective vocational training operation, vocational rehabilitation facility had the highest percentage of respondents who answered, 'Vocational training professional support' (51.7%). Particularly, more than half of workers in the occupational facility (55.0%) and the sheltered workshop (53.2%) answered that vocational training professionals are the most needed. On the other hand, disabled employees responded that 'development of effective vocational training' (36.2%) is necessary on a preferential basis. However, in the case of disabled employees who receive more than the minimum wage at occupational facilities, the percentage of respondents who responded to "securing a budget for more vocational training" (55.6%) was higher. As a program that needs to be strengthened for vocational activities for people with disabilities, 'Current Job Function Improvement Training'

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(49.3%) was the most necessary for a vocational rehabilitation facility, and the opinions of people with disabilities were analyzed in various ways. Disabled employees, who receive more than the minimum wage at occupational facilities, responded that they need "hobby and leisure activity" (55.6%) more than "social adjustment training" (11.1%). On the other hand, those who received less than minimum wage in the sheltered workshop answered that they need "social adjustment training" (37.5%)[4].

Improving the business performance infrastructure is a necessary precondition for expanding the disabled employment policy to the private sector. To produce private jobs for people with disabilities, the policy, which broadens social-economic organization from the center of social welfare institutions to the new business execution institution, is necessary. In the case of including social-economic organization as a support infrastructure for disabled jobs, there are labor-integrated social enterprises and social cooperatives. For instance, utilizing direct support policy such as labor cost support, professional manpower support, and tax benefits preferred by a company is possible by using the (preliminary) social enterprise designation system of the Ministry of Health and Welfare and the metropolitan local governments for the institutional purpose of promoting employment of vulnerable groups such as persons with disabilities, and the Ministry of Employment and Labor's social enterprise certification system. In the case of vocational rehabilitation for individuals with disabilities, such as sheltered workshops, the (preliminary) social enterprise system has been actively used.

Development of new items based on the change of era and financial support for innovation of the existing business (R&D) is the core of the policy to invigorate sheltered workshops. Also, new facility equipment must be built to improve productivity and competitiveness of sheltered workshops, and public and private resources must be developed. As a resemble system, the socio-economic era, including social enterprises (central government and local government), supports enterprise development expense for the sustainable development of business.

2. Development of occupational category and job suitable for people with disabilities

For the development of occupational category and job suitable for individuals with disabilities, this study examined cases that have been recognized as successful employment projects. Typical examples of job creation for people with severe disabilities in Korea include BEAR.BETTER., Donggu Bat, and LEEWHO vocational rehabilitation facility for persons with disabilities, Happiness More, Seton Vocational Rehabilitation Center, Test Works, Calm Taxi and NVisions. They develop occupations that can utilize the characteristics of individuals with severe disabilities, improve product service quality, and diversify the business fields to maintain employment through continuous growth of the company and business stability. The employment cases for the disabled with special features in each industry have increased, and support for strengthening their ability to perform their duties has expanded[1].

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BEAR.BETTER. hired more than 240 employees with a developmental disability, and develop jobs suitable for the characteristics of the developmental disability. Then, they provide services such as printing services, coffee beans roasting, baking, and garland. They also invest in equipment and facility to have competitive power for quality. Donggu Bat produces eco-friendly items such as natural soap, dishwashing soap, and bath bombs, and hired about 20 employees with developmental disabilities. LEEWHO Vocational rehabilitation facility for the disabled specializes in the laundry industry by hiring people with a developmental disability and provides laundry service to the vulnerable class through 'Relatable laundry service' with Incheon city. Happiness More is established as a standard workplace for people with disabilities of SK Hynix. They conduct special clothing manufacturing and laundry business and maintain a 98% employment retention rate for persons with disabilities through job analysis and preliminary problem solving. Through baking and producing & selling organic snack, the Seton Vocational Rehabilitation Center supports job creation and employment maintenance for individuals with disabilities. Test Works takes the advantages: concentration of the autistic disabled and visual sensitivity of people with hearing loss. Then, they develop customized jobs for AI data, automation, and software testing, and provide inclusive employment opportunities. Calm Taxi proposes a new job to the deaf in the distribution center. Through the provision of auxiliary engineering devices, software, application, and service education, they create a working environment adjusted to hearing-impaired taxi drivers. NVisions reduces social prejudice through an exhibition such as "conversation in the dark." They hired a visually impaired as a web test engineer to provide expert advice on improving the accessibility of Naver. Through the disabled employment, Naver operated a cafe and cafeteria. With these activities, NVisions contributes to the expansion of disabled employment.

The disabled job program has tried various job projects to produce and distribute disabled-friendly jobs[5]. The types of business are classified into three categories: general employment (full-time/part-time), welfare jobs (participation type/special education-welfare linkage type), and specialized jobs (visually disabled massage dispatch project/care worker assistant job for people with developmental disabilities). Every year, the major business operator, the Korea Disabled People's Development Institute, implements a pilot project to develop a new business well. General employment is available to the disabled who are 18 years old or older. It not only educates vocational skills for the transition to the general labor market, but also guarantees income. The office type of general employment includes administrative assistants, exclusive charged administrative assistants, welfare service support agent, and vocational rehabilitation facility support agent (limited to part-time system). In the case of exclusive charged administrative assistants, they selected people who can perform basic office automation tasks (documents writing, data management, etc.). For disabled who have difficulty in employment, Welfare jobs support job experience to expand vocational life and social participation by developing and distributing various jobs. It is divided into participation

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type and special education-welfare type based on the participants. Participating type is for the disabled over 18 years of age, and registered in the Welfare Act for People with Disabilities. The special education welfare type is for the student who are enrolled in special education-welfare major. Most of the jobs in welfare are work assistant and repetitive. Office assistance, librarian assistance, postal classification, and infant care are the detailed works. Specialized jobs are classified according to the type of disability, and there are blind massager dispatch projects and care worker assistant job for people with developmental disabilities. The blind massage dispatch project is a job in which unemployed blind people with massage qualifications provide massage service to the elderly who use senior welfare center. Assistant job for care worker with developmental disability support the overall work of care worker.

III. Ministry of Employment and Labor Employment Policy for Persons with Disabilities

The Disability Employment Policy of the Ministry of Employment and Labor is examined by the mandatory employment quota system, standard workplace for people with disabilities, disabled employment support and vocational training policy.

1. Mandatory employment quota system

The mandatory employment quota system is a policy in which employers must hire disabled from 5/100 of the total number of workers to the rate determined by the president. In 2021, the subjects to employment duty are business owners that hire more than 50 full-time workers in the state, local governments. Their mandatory employment ratio is 3.4% for the public institution and 3.1% for the private owner. By 2022, the mandatory employment ratio of the public institution will be revised up to 3.6%. If a company that has 100 or more employees does not reach the mandatory employment ratio, it should pay an employment levy.

Concerning the mandatory employment system, existing research presents two policy tasks[6]. It is urged to prepare a plan to comply with the mandatory employment rate of public institutions. First of all, the research proposes to secure the capacity for hiring disabled, as a system improvement to comply with the achievement of disabled employment obligations. For example, the Jeonju City Employment Ordinance for Disabled Persons in Jeonbuk set a 5% disabled employment rate as a goal. They stipulate that the city and affiliated institutions should find and implement the policy necessary to create jobs for people with severe disabilities (Article 6). However, except for one of the nine public institutions affiliated with Jeonju City, institutions have not complied with the obligation to hire individuals with disabilities. Several previous studies suggest the following resolutions to increase the mandatory employment quota ratio for individuals with disabilities. Firstly, job development and job placement should be made in

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consideration of types of business and disability. Pre-employment programs for enhancing personality and socialization of people with disabilities should be activated[12]. In order to reduce negative perception on the employment of people with disabilities, the programs of improving recognition toward the people with disabilities and promoting the program of supporting the employers should be made[13]. Finally, it is suggested to expand the scope of mandatory employment businesses and to raise the mandatory employment rate for direct employment of persons with disabilities[6].

Second, it proposes to establish a professional support system to help employment tasks for the disabled in public institutions. To expand the employment of people with disabilities in public institutions, the obligation and responsibility should be reinforced and more specialized support for the implementation of the responsibilities of public institutions is needed. For example, the public carbon convergence technology institute in Jeonju city's new personnel management rule, which grants additional points to disabled applicants in the 'employee recruitment test.' Likewise, through in-depth interviews, it was found that public institutions have made practical efforts to expand employment of individuals with disabilities. By 2021, Jeonju City strengthened the 'consideration for the socially disadvantaged' indicator among management evaluation indicators of affiliated organizations, so that the employment rate (performance) of people with disabilities will be directly reflected. Strengthening indicator was inspiring and seems very effective in hiring the disabled in public institutions. It is expected that public institutions will expand efforts to increase the employment obligation rate by hiring disabled in the future. As in the in-depth interview, it is necessary to find the right job applicant or to develop professional support for new jobs. However, still some institutions do not have the necessity or method to implement the employment obligations for people with disabilities, and do not know the way of hiring disabled. Therefore, continuous exchange and professional support between public employment service organizations and public institutions are emphasized.

With continuous exchange and support, employment services for securing the disabled manpower needed by public institutions and organizational harmony of disabled employees could be provided. To expand the employment of people with disabilities, professional personnel dedicated to specific tasks such as employment of the disabled in public institutions are essential.

As an example of job expansion projects for the disabled with private companies, it will be possible to review the development of the Smart Farm industry. Recently, Smart Farm for young people with developmental disabilities was established in Yeoju City through a joint investment between the local government and a private company. In the cases such as LG Paju, SK Hynix, Cheongju, it is necessary to create a large number of jobs and policy decisions are required at the level of attempt[6].

The additional policy proposal regarding the mandatory employment of individuals with disabilities is to prepare an employment policy for the disabled by reflecting the trend of

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strengthening social value management of public institutions. In national affairs, the content of social value is concentrated on the operation of public institutions. Accordingly, from 2017, the Ministry of Strategy and Finance's management evaluation of public institutions included the 'social value' section in the main evaluation. In the 2020 management evaluation indicator, the 'social value realization' received 22 points, including non-measures (15 points) and measures (7 points). It means that the social value section took about half of the proportion in the evaluation indicator system for the entire management, including the internal management section such as management strategy and organizational personnel. Accordingly, the performance of social value implementation in all public institutions including public corporations can have an absolute influence on the overall management performance. Among 13 detailed articles in the Social Value Basic Act proposed by the National Assembly, only five articles are considered in the management evaluation of public institutions.

2. Invigoration of the standard workplace for people with disabilities

The standard workplace for the disabled creates stable jobs and establishes a foundation for social integration for severely handicapped people who have difficulty in vocational activities in the competitive labor market. Also, it provides a friendly (physical and emotional) environment for the disabled by presenting standards for working environment centered on the disabled. To be certified as a standard workplace for persons with disabilities, more than 10 disabled people and 30% of the disabled (different application of obligations to hire persons with severe disabilities according to the number of regular workers) shall be employed. Institution has the convenience facilities under the 'Act on the Promotion of Convenience for the Disabled, the Elderly, and Pregnant Women,' and pay the minimum wage to the disabled employment under Article 5 of the 'Minimum Wage Act.' There are 391 standard workplaces for the disabled that were established and supported to provide stable jobs for people with disabilities. Among them, 25 have been established and operated in Jeollabuk-do, and 10 of them are in Jeonju City. There are 6 general standard workplaces for individuals with disabilities and 4 standard workplaces for subsidiaries. Also, there are 6 manufacturing industries, 1 restaurant and retail business, and 3 service industries. The expansion of the standard workplace for the disabled is a main project of the Ministry of Employment and Labor's employment policy for people with disabilities in 2021, and aims to expand 90 locations.

The standard workplace for people with disabilities is divided into two: general standard workplace and subsidiary standard workplace. Since 2019, type of social economy enterprise standard workplaces and consortium standard workplaces for persons with disabilities have been introduced and operated. The standard workplace for individuals with disabilities fosters stable jobs for severely handicapped people who have difficulty in vocational activities in the competitive labor market. Also, it creates a foundation of social integration and suggests work environment standards focused on

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people with disabilities. Using these steps, the standard workplace for persons with disabilities builds a social (physical and emotional) environment for the severely disabled. The standard workplace for persons with disabilities indicates a workplace which is certified by the Corporation by satisfying the criteria of standard workplace for the disabled according to Article 3 of the Enforcement Regulation of the Employment Promotion and Vocational Rehabilitation Act for the Disabled. As an example of fostering base companies centered on subsidiary disabled standard workplaces, large scale subsidiary disabled standard workplaces invested by major company such as LG Chem, LG Household & Health Care Co., Ltd., and SK Hynix Co., Ltd. are located in Chungbuk. The subsidiary standard workplace for individuals with disabilities, which is invested by large corporations, is a good opportunity for the disabled who are looking for stable and safe quality jobs. Among local governments across the country, Chungcheongbukdo (Chungbuk) has the highest population ratio of developmentally disabled people. Also, the number of people evaluated for developmental disabilities has rapidly increased in the public corporation Chungbuk branch. Due to these problems, it was urgent to prepare a countermeasure such as discovering job seekers with developmental disabilities. In Chungbuk, they found the jobs of severely handicapped people and proposed it such as office workers, barista workers, car wash workers, parking management workers, production workers, laundry workers, and sewing workers. As the relocation of public institutions to the Chungbuk has been promoted (especially, health and medical institutions), the fact that the number of jobs for persons with disabilities has increased in the health medical field can be a major consideration[7]. In February 2021, Yonsei University signed an agreement with the Korea Employment Agency for the Disabled to establish a subsidiary standard workplace for the Disabled.

As a consortium exemplary case, the Purme Foundation established the first consortium disability standard workplace in Korea with local governments and public institutions; it is a farm where people with developmental disabilities can work happily and dream of self-reliance. As of May 2021, 26 people with developmental disabilities are working. Purme Social Farm is a smart farm where people with disabilities can work easily and safely. Beyond the work, Purme Yeoju Farm, which will raise mushrooms and tomatoes, researches and develops farming programs for vocational rehabilitation of severely handicapped people. Also, they have been seeking a way to become an exemplary win-win model with the local community by processing and selling local agricultural products. The Purme Foundation plans to expand the social farm nationwide, starting with Yeoju.

3. Support for employment of the disabled and invigoration of vocational training

The employment success package for disabled working support is a professional employment support program that provides phased integrating services to support successful employment and job adjustment to people with disabilities. To support the employment of individuals with disabilities, the employment success package project of

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people with disabilities employment such as counseling, vocational training, and employment arrangement should be actively utilized. (The employment success package aims to target the low-income class, except for certain class and young people since it is integrated into the national employment support system from 2020. Based on the working characteristic of low-income family, the program was divided into package I type and package II type. Type I targets recipients of livelihood benefits, general low-income family, and specific class (including people with disabilities). Type II targets young people and middle-aged and elderly people).

The first stage of the employment success package is to establish a specialized employment path individually by identifying the professional aptitude and preference of the participants. The second stage is to promote work motivation and employment capacity based on the first stage of the individual employment support plan (IAP). The third stage intensively arranges employment of the participants to enter the labor market smoothly. The final follow-up management is a stage to encourage the unemployed participants, who have completed the 3rd stage of the employment success package, to find a job by providing job opening information. For employed disabled, they help them to adapt to the workplace and induce to serve for a long time. The Ministry of Employment and Labor commissioned the disabled to Employment Agency for the Disabled (EAD), and EAD started the employment success package project in 2014. Since 2017, it has been in progress as a project of EAD.

In the results of the 2019 employment success package project, the total number of participants is 8,181 (severe 4,325, 53%), and 2,497 disabled succeeded in employment through the first, second, and third stages, which is 30.5% of the total number of participants. The age of participants was 20-29 years old (30.7%) and 50-59 years old (18.6%). The types of disabilities were physical disabilities (31%), intellectual disabilities (28.7%), and visual impairment (10.5%). To reinforce the employment success package project for people with disabilities, the diversification of the second stage capacity building process is emphasized because it provides limited vocational training opportunity and capacity-building processes. Specialized programs based on the individual needs of individuals with disabilities. and maintenance of the support system is required[8].

In employment policy for people with disabilities, vocational training should guarantee the continuous employment of persons with disabilities, and the infrastructure, which reflects the characteristics of the labor ability of individuals with disabilities, should be established or expanded. To invigorate vocational training for people with disabilities, the central government plans to expand customized training courses for people with sensory impairments such as blind and deaf. Information accessibility consulting is considered a program for the blind. It is a process of training professional manpower to build and develop a convenient information access environment through education on information accessibility technology and standard guidelines. Related employment areas include web accessibility user evaluation personnel/professional evaluation personnel, accessibility

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consultants, web publishers, web developers, web planners, and information accessibility diagnostic evaluation companies. For the deaf, CAD/CAM and electronic devices have been considered. The CAD/CAM fosters product & component design and production capability using CAD programs and 3D printers. Related employment areas include equipment industry parts manufacturers, automobile manufacturers, ship industry parts producers, and semiconductor manufacturers. The electronic device process enhances the ability to manufacture, operate, repair, and maintenance of electronic devices. The employment field is electronic equipment manufacturing enterprise, semiconductor product company, automobiles, airplanes, and ship manufacturers[3].

The government has established customized vocational training courses for people with sensory disabilities such as blind and deaf. As vocational training institutes for the blind in Korea, there are the Special School for the blind, the massage training center attached to the Korean Massacre Association, the Welfare Center for the blind, and the Ilsan Vocational Training Center for the Disabled. In the blind school and the massage training center, they teach massage as a major course. However, only in Hanbit Blind School, they nurture musicians through music majors. The Ilsan Vocational Training Center operates the accessibility job training course. Among the 15 welfare centers for the blind nationwide, 10 welfare centers conduct vocational training, and 5 welfare centers do not have vocational training courses. In the fourth industrial revolution, demand for human resources with technology in artificial intelligence, the Internet of Things, big data, mobile & cloud will increase. Employment Agency for the Disabled proposes mobile application development work as the most accessible technology for the blind[5].

IV. Project associated with disabled employment of the central administrative department

In addition to the Ministry of Health and Welfare and the Ministry of Employment and Labor, the project of the various central administrative departments such as the Education Department has been progressed associated with disabled employment

1. Project associated with disabled employment of the Ministry of Education

The Ministry of Education strengthens the linkage between the lifelong education system and disabled employment. The Ministry of Education is building a community-based lifelong education system. They expand lifelong education city for people with disabilities (5 in 2020 to 15 in 2021) for the establishment of lifelong education based on region and strengthen job connection through it. The main plan is to improve the operation of lifelong education city for individuals with disabilities by such as strengthening performance management to expand the connection between lifelong education city for persons with disabilities and local community jobs in 2021. In 2020, Gwangmyeong city in Gyeonggi, operated a lifelong education job course such as acquiring certifications and

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job placement, which supports the vocational capacity of people with disabilities. In the same year, Korea National Institute for Special Education of the Ministry of Education established and operated a 'Lifelong Education City for the Disabled' project to expand opportunity for disabled lifelong education in five regions, including Gwangmyeong and Osan in Gyeonggi. The purpose of this project is to make it convenient for people with disabilities to participate in lifelong education in the community by establishing a network to support lifelong education for individuals with disabilities among public and private institutions, welfare facilities for the disabled, and educational institutions in the region. For Gwangmyeongsi in Gyeonggido, lifelong education is being carried out in seven areas including lifelong job education and vocational ability improvement education. In 2020, 18 subjects of education, including Gwangmyeong Disabled Family Support Center, provide 33 educational programs.

2. Project associated with the Ministry of Culture, Sports and Tourism

Associated with the Ministry of Culture, Sports and Tourism project, new items for people with disabilities should be considered. Typically, first, the job of cultural and artistic activities should be developed, such as the culture and arts related to Hanok Village. It is necessary to prepare a new job development plan for persons with disabilities in the field of culture and arts by referring to the creative activity support policy and the employment support law on the support of cultural arts activity for the disabled artists enacted on June 9, 2020 and implemented on December 10, 2020. Among the cultural and artistic activity scheduled to be introduced in 2021, job manuals will be provided focusing on the current choir activity. Not only music, but also performance, and art have to develop new items for people with disabilities in other cultural arts fields.

As new jobs in 2021 related to fostering professional disabled artists, the government is promoting a disabled art performance hall to invigorate professional arts activity of people with disabilities. The government will expand the employment of persons with disabilities through the establishment of a disabled art group in a private company that is subject to the mandatory employment of individuals with disabilities. They will support the employment of professional personnel such as disabled artists (122 people). The Ministry of Culture, Sports and Tourism is also planning to educate content personnel for people with disabilities, which is one of the promising business in the future (the annual transaction amount of Naver Webtoon in 2020 is 820 million dollars, which is 36.6% higher than the previous year (600 million dollars). Adding to nurturing creative talents focused on the webtoon (510 people in 2021) and expanding online webtoon educational contents (new 5 types in 2021, sign language provided), they are planning to establish a cartoon-related career and vocational education for people with disabilities, such as special schools. In the field of physical culture, it is planning to expand employment and manpower training support for stable social re-participation of retired disabled athletes to create jobs for peosons with disabilities[9].

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3. Project associated with the Ministry of Agriculture, Food and Rural Affairs

The policy plan associated with the Ministry of Agriculture, Food and Rural Affairs is as follows. First, it attempts to find agriculture jobs for people with disabilities in the primary industry and the sixth industry. The primary industry is the agricultural field, and the sixth industry creates new values and jobs by converging the primary agriculture industry with the secondary processing industry and the service industry. Both industries diversify the occupational areas of people with severe disabilities. For example, crop cultivation technology of plants and animals can be used in urban areas as a form of urban farmer and urban beekeeping, so it can explore various jobs in the primary industry. Second, it provides vocational education programs through social agriculture. By using social farms to provide an opportunity for the development of various vocational skills for people with disabilities in the agro-food field, it is possible to utilize the related projects of the Ministry of Agriculture and Food in 2021. Social agriculture is an activity that provides care, education, and jobs to the socially disadvantaged such as people with disabilities and the elderly through agriculture. Social farm implements agricultural activity programs like crop cultivation and props production (30 places in 2020). There are a total of 16 farms that operate programs for persons with disabilities, and 260 people have been participating. Social agriculture activity minimizes obstacles necessary for vocational ability development, and it includes psychological rehabilitation, interpersonal relationship improvement, and physical ability improvement. The central government plans to support exemplary social farms to systematically develop vocational skills by having the training courses including training teachers and programs. If the farm is selected as a training course for a vocational rehabilitation institution for people with disabilities by the Ministry of Labor, the training fee (average $5.8 to $6.7 per hour) and allowance for participants (monthly $265) are supported[3].

Social farms will be expanded from 13 cities/provinces (28 cities/ districts / boroughs) and 30 locations in 2020 to 14 cities/provinces (45 cities/ districts / boroughs) and 60 locations in 2021. Social farms receive subsidies of $60,000 per year (70% from the state, 30% from local expenses) for up to 5 years for social farming activity operating expenses, network construction expenses, and facility improvement expenses. Through agricultural activities, social farms provide services such as care, education, and employment for the socially disadvantaged, the disabled, and the elderly. The newly selected social farms in 2021 have 22 places where the greatest number of disabled works together. Various socially disadvantaged people including the elderly, out-of-school youth, multicultural families, and those who want to return to farming and rural areas will participate too.

4. Project associated with the Ministry of SMEs and Startups

There is a plan to expand the employment of people with disabilities through disability-related company supported by the Ministry of SMEs and Startups. A disability-related company indicates a company owned or managed by a disabled person, and the percentage

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of disabled people among regular workers in the company is 30% or more. A disabled person should be registered as a company CEO. However, if there are multiple company CEO (co- representatives), the number of shares owned by disabled CEO should be the same or greater than the number of shares owned by a non-disabled co-representative, and the company should have been registered by people with disabilities. Also, cooperatives (excluding social cooperatives and associations) that are owned and managed by people with disabilities can be certified by the disability-related company. There is no special support project or budget for the research and development of the disability-related company. The only project is to support prototype production, but it is difficult to identify it as research and development support. To engage in economic activity in a disability-related company, corporate innovation activity is more important than anything else. For this innovation, expanding the role and function of the support organization and establishing a legal basis for R&D support is urged[10].

Since 2020, the Ministry of SMEs and Startups has implemented a project to build specialized workplaces for people with developmental disabilities. It is a project that builds and operates specialized workplaces to support practical start-ups such as education, production and management experience, and establishment space. It was made to provide stable jobs and economic financial independence for people with developmental disabilities and their families. The General Support Center for the Disabled is in charge of business operation. In 2020, workplaces were established in two regions: Andong-si, Gyeongbuk, and Gwangsan-gu, Gwangju. In 2021, a specialized workplace will be built in three local governments: Jeju Island, Chungcheongnam-do, and Taean-gun, Chungcheongnam-do. A total of 18.5 million dollars will be provided to the selected local governments for five years, including 11 million dollars for construction costs and 7.5 million dollars for operating costs. Jeju Island plans to build a Shiitake Mushroom Smart Farm on 2,68m² in Araidong of Jeju city and connect it with Nara Market and NACF. Chungcheongnamdo will build a specialized workplace that produces local special products such as chestnut and strawberry by utilizing surrounding land and new building of the South Disabled Welfare Center in Gyeryong-myeon, Gongju-si, Chungnam. Taeangun in Chungcheongnamdo, plans to support fostering agricultural technicians with a smart farm. In the smart farm, people with disabilities can raise and dry white mucosa larvae on the 2,800 m² sites of the Artificial Intelligence Convergence Industry Promotion Agency in Dalsan-ri, Nam-myeon[11].

V. Discussion

Despite its relatively short history, the employment policy for people with disabilities has shown remarkable growth in Korea. However, the employment of individual with disabilities still shows several limitations compared to the employment rates and quality

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of individual without disabilities. In order to solve these problems, macro-infrastructure expansion for the employment of person with disability, specific vocational policies for people with developmental disabilities, and active career development policies by private companies are required.

First, it is crucial to establish a public-private governance system to promote employment of people with disabilities. Through the governance system for the employment policy, cooperative activities between public and private organizations working with the same goal of employing the disabled will be achievable. To enable integrated case management for the employment of individual with disabilities, the governance system should involve all public and private organizations related to the employment of person with disabilities, such as the Korea Employment Agency for the Disabled, the local Employment Team for individual with disabilities, the Welfare Center for the Disabled, Vocational Rehabilitation Facilities, and Organizations for people with disabilities. The governance system could serve as an employment information platform for people with disabilities, not only providing information regarding employment services to the disabled who want to work, but also providing employment information.

Second, specific employment policies for people with developmental disabilities are required. First of all, as an employment policy for people with developmental disabilities, it is vital to provide sufficient training period for job stability and active support from job coaches. In other words, it is essential to offer additional professional support and redesign the vocational training period at vocational rehabilitation facilities and job sites where numerous people with developmental disabilities are employed.

Third, policies to increase employments for individuals with disabilities using private companies should be encouraged. The employment of people with disabilities requires the active participation of the private sector as much as the strong role of the government. Employment policies should be established in consideration of private companies' demands and ESG social contribution activities. The government should develop customized employments for private companies and create innovative jobs for individuals with disabilities.

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ACTIVITY REPORT

Research Practices for Managing Group Work Settings with Participant Groups Including Hearing-Impaired Students

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ABSTRACT

This study aimed to assess different methods for managing group work scenarios in actual seminar classes at higher education institutions, utilizing action research techniques and accounting for hearing-impaired students, so that all types of students may progress smoothly. In reviewing participants' reflections, we found that the speed of group work tasks fell as a result of research team intervention, causing hearing-impaired students to feel more at ease psychologically and other participants to feel constrained by the discussion restrictions and rules. However, participants' burdens gradually became more intertwined, with other participants becoming more accustomed to the burdens of hearing–impaired students, suggesting that we were moving towards a universal environment.

< Key-words >

Hearing-Impaired Students, Group Work, Action Research

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I. Introduction

The inability to adequately participate in learning environments integrating verbal input from multiple individuals, such as situations involving group work (hereafter, "GW"), is a widely recognized issue facing hearing-impaired students enrolled in higher education institutions－one raised by these students as well[1]. Tertiary education often nurtures environments that cultivate problem discovery and resolution skills in students, which could consist of traditional classroom settings or lively discussions in which voices often overlap, making it difficult to distinguish between speakers or an individual's position in the space. Although many hearing-impaired students receive support in the form of text-based or sign language interpretation, the use of such methods may lack the spontaneity required for discussion. FM microphones or other devices may help to bridge the gap, but associated equipment or audibility concerns could arise. Such difficulties with GW also include company meetings[2] occurring after work hours. many cases of early turnover among hearing-impaired employees have been observed due to similar problems.

Therefore, it was necessary in this study to control the progression of GW scenarios and assess different management methods to facilitate sufficient comprehension by hearing-impaired individuals from their perspectives. Considering the impact of resulting changes on the auxiliary participants of the study was also crucial as it maintained the quality of discussions during GW. Hearing-impaired students are often too aware of their receiving support, and only receive more superficial elements of the discussion, it was especially important to avoid redundancy and obtain consent from participants in this study of hearing-impaired students conducted together with other students. In this way, we hope to balance the quality of discussions in GW with inclusion.

The present study aimed to assess different methods for managing GW scenarios in actual seminar classes at higher education institutions, utilizing action research techniques and accounting for hearing-impaired students, so that all types of students may progress smoothly.

II. Methods

1. Action Research

The concept of action research (hereafter, "AR") was proposed by the social psychologist, Lewin, in the 1950s. It sought to realize a better society through collaborative social practices between researchers and research subjects. This study was conducted in a manner similar to the 'mutual approach' method involving the participation of researchers and research subjects from equal positions[3]. The researchers participated in seminar-style classes containing hearing-impaired students who were asked for their opinions on the management of GW methods. After study participants had been briefed on the general

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intent and purpose of the study, they all approached the research with the mindset of working to improve each other's shared circumstances. After each time the end, we were allowed to describe their impressions and improvements of group work on paper to all participants.

2. Research Subjects

This study involved students enrolled in a seminar-style class containing 5 hearing-impaired students (2 undergraduate, 3 graduate), 7 non-disability students (4 undergraduate, 3 graduate), 1 instructor, and 2 support staff providing computer-based captioning. Sessions lasted approximately 90 minutes. Participants sat so as to form an enclosure. The captioning was occurring during the use of the cushion ball. Groups of two participants each presented the topic for discussion on a rotating basis. The discussion that followed was moderated by the seminar instructor.

3. Research Cycle

Study procedures were structured according to Kemmis and McTaggart's model[4]: ① Plan → ② Act → ③ Observe → ④ Reflect → ⑤ Re-planning. Each step was performed by members of the research team. Actual tasks performed as part of GW comprised Step ②, which included input from research subjects. The study was conducted between July and December 201x.

4. Assessment

Assessments were conducted based on three modes of data collection: filling out of reflection sheets (A5-sized paper/free-answer format) by participants after each seminar session, subjective evaluations by participants of their mental workload (Card-Sort TLX), and group interviews held with study participants.

5. Card-Sort TLX

Card-Sort TLX[5] is a 6-tiered scale, structure-based method for measuring subjective mental workload with respect to mental and physical demands, temporal demand, performance, effort, and frustration. Study participants rated their subjective burdens on a scale of 1–100, then weighted their ratings between scales, and finally, calculated their overall weighted workload (WWL). The NASA-TLX variant used in the present study, a system based on the NASA-developed NASA-TLX scale, assumes the paired comparison of ranking scales. Card-Sort TLX weights the scales in order and applies that order as a factor multiplied by the raw score from each scale. Because the sum total of the weighted factors is then divided, the burden attributable to each subject is minimal. Additionally, the scale's sensitivity is favorable and comparable to the conventional NASA-TLX scale. Given that the present study utilized an AR approach, with a single implementation occurring over a long period of time, and because the nature of the experiment, being

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controlled, differs, we were not limited to measuring participants' burdens in a linear fashion. Rather, we were able to compare these scores to qualitative data such as participants' self-reflections, to be used as an index for improving GW in such environments.

6. Ethical Considerations

The present study was evaluated by and received the approval of the University of Tsukuba Research Ethics Committee. All participants received an explanation of the procedures of the study, and gave written informed consent.

III. Results

1. Term 1 (baseline)

To ascertain the particular issues regarding management of seminar classes thus far, we arranged for 3 GW sessions to be conducted, with no intrusion by research staff, to serve as the baseline period. A review of participant reflections showed that hearing-impaired students "could not follow the flow of discussions" and "could not say anything even if they understood the content of the discussion, and just gave up." These responses coincided with previous research. By referencing the results of the Card-Sort TLX assessment (Figure 2) in all three baseline cases, we found that hearing-impaired students reported higher task burdens. Although the ranking scales used in the bar chart and for the assessment were 25% trimmed averages of all study participants, values for mental demand and effort were higher.

In accordance with these findings and the results of discussions with the research team, 3 changes related to GW were implemented up to that point:

[Management of Speaking Turns] Turns to speak were determined by passing a ball around (i.e., a cushion-ball manufactured by Hasbro), which clearly established whose turn it was to speak. In general, participants could not speak until they were holding the ball. Therefore, this was one way of dealing with comprehension concerns that hearing-impaired students had.

[Establishment of Moderators] A student was appointed as a moderator for each seminar class session. In addition to managing the aforementioned system, moderators warned participants of violation of discussion rules. Moderators could interject intentional delays into discussions, aid support staff in providing captions, and help hearing-impaired students in understanding the contents of discussions.

[Changes in Desks] We upgraded participants' seating arrangement to overlook one another from the previous oval-shaped desks.

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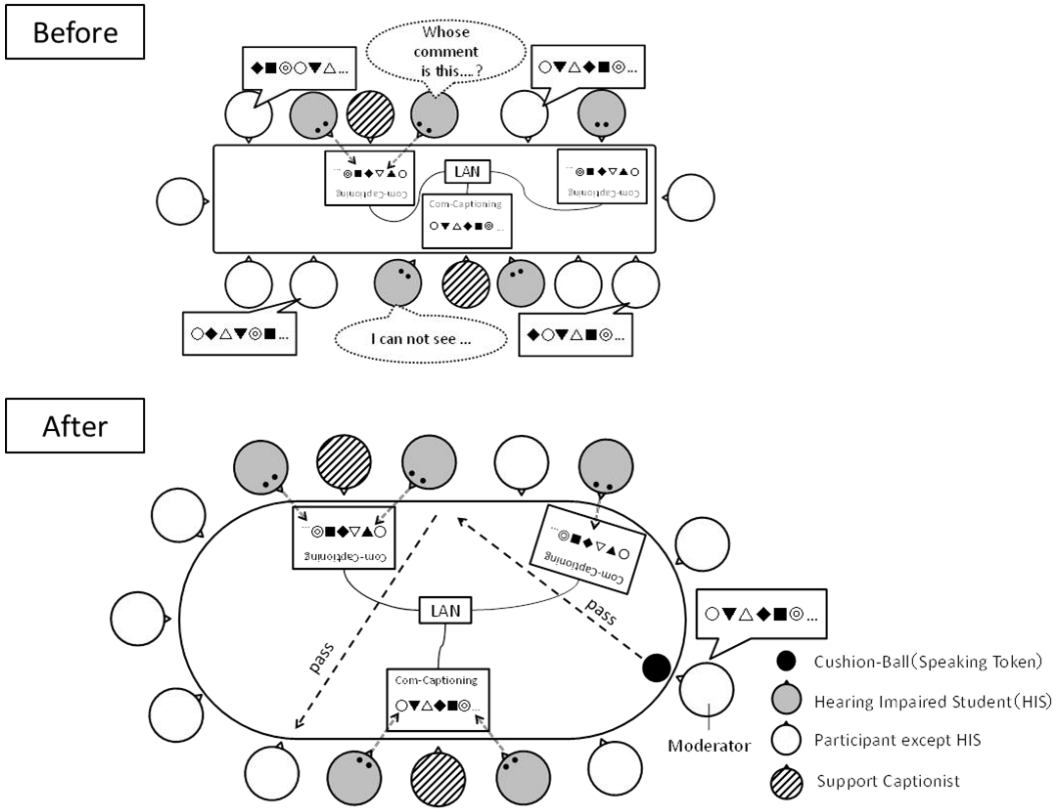
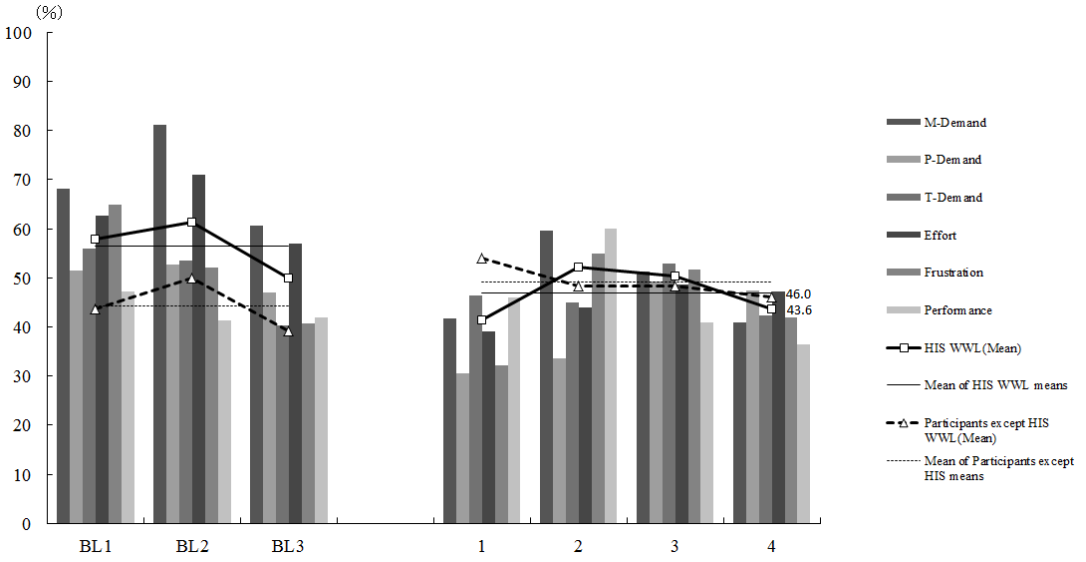


NOTE: The majority of the support systems for hearing-impaired students in Japan are the real-time computer captioning by the software called IP-TALK(on Windows). In this study, the hearing-impaired students are getting text support via the captionists. Connecting multiple computers by LAN enables collaborated text entering. However, as the IP-TALK computer monitor works for both Support captionist's entering text and the student reading it, the student will be watching the monitor beside the Support captionist while he/she is typing all the time.
Hence, there is an issue that hearing impaired students are not able to look at the speaker, and are not able to catch up with the proceedings of the discussion.

<Figure 1> Study Layout



<Figure 2> Result of Card-Sort TLX

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2. Term 2

We conducted GW sessions inclusive of the aforementioned improvements gleaned from the previous 3 sessions. Hearing-impaired participant reflections indicated how they felt: e.g., "the pace of different speakers has become more relaxed, and there were fewer times when I could not understand the content of the discussion," "students were able to participate with the help of the moderator's guidance," "this way of doing things allowed me to participate in discussions, too, and gave me confidence," and "passing the ball made it easier to know who to focus on during conversations." Comments from other participants were mixed: "it was easy to tell when someone's turn to speak was over," "there was not even one heated discussion," "when someone's turn to speak was over (and we forgot who's turn it was), people would start to talk over each other," and "I was not used to not being able to speak when I had something to say, and it was irritating."

By referencing the results from the Card-Sort TLX assessment (Figure 2), we found that hearing-impaired and other students scored an average of 43.6 and 46.0, respectively, compared with the baseline, indicating that hearing-impaired students' burdens were lower, while, conversely, other participants' burdens were higher.

IV. Discussion and Future Goals

In reviewing the Card-Sort TLX ranking scale, mental demand and effort values decreased while those for frustration increased. In reviewing participants' reflections, we found that the speed of GW tasks fell as a result of research team intervention, causing hearing-impaired students to feel more at ease psychologically and other participants to feel constrained by the discussion restrictions and rules. However, participants' burdens gradually became more intertwined, with other participants becoming more accustomed to the burdens of hearing–impaired students, suggesting that we were moving toward a universal environment. A limitation of this study is that the methodology for measuring group workload using the Card-Sort TLX requires further refinement of the study design.

Therefore, we would like to position this work as a pilot study for the scientific control of the multivariate field of GW. Because the study sought to improve upon the norm for conducting GW, results such as hearing-impaired students being "able to be confident" in discussions were achieved. Through such measures, and by establishing opportunities for trial and error, these students were able to cultivate basic skills relevant to career education as well. In the future, we will continue to conduct practical exercises and make quantitative evaluations, and would like to take an educational-technology perspective and consider ways to implement a holistic understanding of disability in inclusive education in school environments, while also aiming to build an environment in which all members can equally participate.

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⑥ Cabinet Office (2011) Public opinion poll on nursing care insurance system.
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  e.g.) Japan Association of Geriatric Health Services Facilities. White Paper on Care in FY2016 -From the Standpoint of Geriatric Health Services Facilities-. 2016b, 10-13, Office TM Co., Ltd.

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