

Development of a Health Support Program for Japanese Elementary School Students with Developmental Disorders Enrolled in Regular Classes

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[Received March 6, 2020 ; Accepted February 24, 2021]

Background: In Japan, special support education for students with developmental disorders became available in regular classes from April 2007. It has been reported that students with developmental disorders tend to have more health problems than those without. Support is needed from an early stage to reduce difficulties in the daily life of students with developmental disorders and to prevent secondary issues such as bullying and lack of acceptance by peers.

Objective: The purpose of this study was to develop a health support program to improve the skills of *Yogo* teachers in providing appropriate support to students with developmental disorders.

Methods: Survey 1 was conducted to clarify the actual situation of elementary school students with developmental disorders and analyze the support provided by *Yogo* teachers. A total of 1,000 public elementary schools were randomly selected nationwide for Survey 1. Questionnaires were sent by mail to the school principals for distribution to *Yogo* teachers. The survey 1 was conducted between October and December 2017. The contents of the survey included circumstances of students with developmental disorders, the difficulties *Yogo* teachers face in relation to students with developmental disorders, and the respondents' hopes related to future training on developmental disorders. Based on the results of Survey 1, a health support program was organized, and a pilot study of the program was conducted (Survey 2). A two-day training session was held in August 2018 to verify the effectiveness of the program. Questionnaires were administered before, immediately after, and three months after the training to verify the effectiveness of the program.

Results: In Survey 1, the authors analyzed the 212 valid responses (valid response rate = 21.2%). There were students with developmental disorders (including undiagnosed cases) at 199 schools (93.9%). The *Yogo* teachers with ≥ 6 years of experience were able to smoothly prepare for health examination ($p < 0.01$). In addition, 84.4% had taken the training on developmental disorders. However, there were few trainings focusing on the role of *Yogo* teachers, and most of them wanted to learn specific support methods. In Survey 2, we organized a health support program with specific support methods for *Yogo* teachers and conducted a pilot study. In Survey 2, there were 20 *Yogo* teachers in the training, with a mean age of 38.2 (SD 9.93). The content of the program was evaluated by all the *Yogo* teachers as appropriate, easy to understand, and useful.

Conclusion: The health support program for students with developmental disorders was positively evaluated by the *Yogo* teachers who participated in the training. The findings of this study suggest the said program could help *Yogo* teachers improve their health support skills.

Keywords: developmental disorders, elementary school students, *Yogo* teachers, health support program

[School Health Vol.17, 9-19, 2021]

I. Introduction

In Japan, the construction of an inclusive education system has been promoted on the basis of the Convention on the Rights of Persons with Disabilities. Special support education for students with developmental disorders first became available in regular classes from April 2007. According to a 2012 survey by the Ministry of Education, Culture, Sports, Science and Technology (MEXT)¹⁾, the enrollment rate of students requiring special support education in regular classes was 6.5%. Students with developmental disorders and students who are undiagnosed but are suspected of having developmental disorders (hereafter referred to collectively as “students with developmental disorders”) require individual support because disorders vary from person to person. The examples of reasonable accommodation provided by MEXT for developmental disorders in schools were mainly from the perspective of learning, and there were few examples of accommodation from the perspective of health and life²⁾. *Yogo* teachers are in a position to support the health of students with developmental disorders. Since support is highly individualized, it is speculated that there is a great deal of anxiety, which is considered to be the cause of stress.

Elsewhere, it has been reported that students with developmental disorders tend to have more health problems than those without³⁾. As professionals responsible for the health of students, *Yogo* teachers must recognize students’ health problems and provide appropriate support at an early stage. The Guidelines for Maintaining Educational Support Systems for Infant and Child Students with Disabilities, including Developmental Disorders, issued in March 2017⁴⁾, cites four different key roles of *Yogo* teachers: ①provision of health consultations for students ②cooperation with the special needs education coordinator and the school committee, ③implementation of health examination and guidance in consideration of students who need special education support, and ④consultation with school doctors and cooperation with medical institutions.

To fulfill these roles *Yogo* teachers require understanding and support skills relevant to students with developmental disorders. Support is needed from an early stage to reduce difficulties in the daily life of students with developmental disorders—even if only slightly—and to prevent secondary issues such as bullying and lack of acceptance by peers. Health support is the primary role of *Yogo* teachers.

The purpose of this study is to develop a health support program to improve the skills of *Yogo* teachers in providing appropriate support to students with developmental disorders.

II. Methods

1. Procedures

The following two surveys were conducted. Survey 1 was to clarify the circumstances of students with

developmental disorders who are enrolled in regular classes at public elementary schools, the educational support system, health support provided by *Yogo* teachers and *Yogo* teacher’s occupational stress. Survey 2 was to develop a program for the appropriate support for students with developmental disorders by *Yogo* teachers on the basis of the results of Survey 1, implement a pilot study of the program and carry out a survey study of the participants.

2. Method of Survey 1

(1) Subject and Procedure

The subjects were *Yogo* teachers working at public elementary schools. The authors randomly selected 1,000 nationwide public elementary schools and the explanations of the research survey and self-administered questionnaires were mailed to school principals. The questionnaires were distributed to the *Yogo* teachers who were the survey participants. To maintain the confidentiality, the respondents themselves returned the questionnaires to the researchers via mail. The survey was conducted between October and December 2017.

(2) Survey1 Contents

This survey sought to measure *Yogo* teachers’ basic attributes, the circumstances of students with developmental disorders, difficulties and solutions for providing support, whether *Yogo* teachers had received training for developmental disorders, and a simple occupational stress questionnaire (hereafter referred to as “stress scale”). The survey included 15 items on difficulty in learning instruction, two items on smoothness of preparation for health examination, five items on responding to the cognitive and comprehension level of students, and three items on difficulty in cooperation with school staff. The stress scale is a questionnaire comprising 57 items with four possible responses that measure work-related stress, reactions to stress, and modifying factors. The stress scale comprises nine scales for work-related stress factors, six scales for reactions to stress, and four scales for modifying factors.

(3) Data Analysis

The stress scale has a standardized scoring method that calculates the scores of the items corresponding to each scale and converts them into five levels for evaluation⁵⁾. The stress scale scores were calculated with this standardized scoring method.

The circumstances of *Yogo* teachers and students were analyzed with descriptive statistics. The relation between the *Yogo* teachers’ basic attributes and the support provided by the *Yogo* teachers was measured by a chi-squared test. The relation between the involvement of *Yogo* teachers and scores on the stress scale was described by classifying the *Yogo* teachers into a high-performing group and a low-performing group on the basis of the difficulties experienced by the respondents and their ability to support students with developmental disorders. The items on difficulty in learning instruction,

items on smoothness of preparation for health examination, items on responding to the cognitive and comprehension level of students, and items on difficulty in cooperation with school staff, a scale score was used in five response categories ranging from “very applicable” (1 point) to “not applicable at all” (5 points), and the total score was calculated. The total score ranges from 15 to 75 for learning guidance, 2 to 10 for preparation for health examination, 5 to 25 for students’ cognition and comprehension, and 3 to 15 points for difficulty in collaborating with school staff. Each total score was divided into a high group and a low group according to the mean. The difference between the mean stress scale scores for the two groups was then examined. The statistical significance level was 5%. All analyses were conducted by using IBM SPSS Statistics Ver.26.

This survey was conducted with the approval of the research ethics committee at the author’s institution (approval No. 1207).

3. Method of Survey 2

(1) Feature of the program

Yogo teachers need to understand developmental disorders and acquire support skills to be able to resolve difficulties associated with students with developmental disorders and provide the appropriate health support. Thus, in this survey, the authors aimed to develop a health support program for *Yogo* teachers. This program’s purpose was to help *Yogo* teachers understand the features of developmental disorders, learn how to support students with developmental disorders according to their characteristics, and acquire support skills. A particular feature of this survey is the development of a health support program through a participatory approach. To do so, elementary *Yogo* teachers practiced and tested

their health support skills in schools with students with developmental disorders who are enrolled in regular classes.

(2) Program organization and content

In May 2018, the authors organized a health support program for *Yogo* teachers to address the health-related issues of school students with developmental disorders who are enrolled in regular classes. The program’s contents and the length and timing of training were determined based on the results of Survey 1. In August 2018, two eight-hour training sessions were held two weeks apart. The features of the program were: ① health support program for *Yogo* teachers that included training on support skills based on theory and models. ② a participatory program for *Yogo* teachers to acquire and improve health support skills that could be used at school health centers. ③ ways to foster students’ abilities to live their lives and promote “school adaptive capacity” from a developmental and health perspective. This program focuses on the role of the *Yogo* teacher and supports students with developmental disorders.

The program details are shown in **Table 1** so that *Yogo* teachers can respond to the developmental tasks and needs of students with developmental disorders.

Each program session shown in **Table 1** was taught by one instructor. The content of each session was from a health standpoint in accordance with the role of a *Yogo* teacher. In “characteristics and support for elementary school students with developmental disorders,” a lecture was provided on common features of developmental disorders and their role in how *Yogo* teachers support students. In “understanding clinical symptoms and support for elementary school students with developmental disorders,” lectures were held on understanding the mental health of students with

Table 1 Training Program on Health Support for two days

| Contents | Training methods | Time(min.) |
|---|------------------------|------------|
| First day | | |
| Guidance/ questionnaire survey | Guidance | 30 |
| Characteristics and support for elementary school students with developmental disorders | Lecture | 120 |
| Understanding clinical symptoms and support for elementary school students with developmental disorders | Lecture | 120 |
| Health support techniques for students with developmental disorders (1) | Lectures and Exercises | 75 |
| Next information/ Questionnaire survey | Information | 30 |
| Second day | | |
| Guidance | Guidance | 15 |
| Guidance and support systems for students with developmental disorders | Lectures and Exercises | 120 |
| Health support techniques for students with developmental disorders (2) | Lectures and Exercises | 75 |
| Group discussion (support issues for students with developmental disorders) | Discussion | 120 |
| Information/ Questionnaire survey | Information | 30 |

Note: Each session was taught by one instructor

developmental disorders and *Yogo* teachers' role in the early detection of mental health concerns. In "health support techniques for students with developmental disorders (1)," as support technology for students, an exercise using Revised Life Analytics Counseling (LAC-R)⁶ was conducted to teach skills for analyzing daily behavior and consulting about behavioral changes under the guidance of a *Yogo* teacher. On the second day, "guidance and support systems for students with developmental disorders" included lectures and exercises on the support *Yogo* teachers provide to improve the self-esteem of students with developmental disorders. In "health support techniques for students with developmental disorders (2)," an exercise was conducted using a collage technique, which is said to have cathartic effects. Finally, during the "group discussion," *Yogo* teachers shared their opinions on the difficulties, challenges, and opportunities for ingenuity in supporting students with developmental disorders. In particular, health support techniques (1) and (2) were skills that *Yogo* teachers could use immediately in the infirmary.

(3) Subjects and recruit participants

Yogo teachers working at public elementary schools in the Kanto area. In June 2018, a research description and summary were mailed to the principals of 1,000 randomly selected public elementary schools in the Kanto area, and participants were invited to participate in the survey.

(4) Survey Method

To verify the effectiveness of the program, questionnaire surveys were conducted with participants before, immediately after, three months after, and one year after the program. The contents of the survey included evaluation of training items, utilization of skills, changes in health support, etc. The survey period was from August 2018 to November 2018.

(5) Survey Contents

The contents of the survey before participating in the training included the respondents' basic information, circumstances of students with developmental disorders, the support *Yogo* teachers provide and the difficulties they face in relation to students with developmental disorders, and a simple occupational stress questionnaire (hereafter referred to as "stress scale"), Rosenberg's Self-Esteem (SE) scale (10 items)⁷, Takata and Sakata's Psychosomatic Complaints Scale (30 items)⁸ (referred to as the "PCs scale" below).

The contents of the survey immediately after participating in the training included evaluation of program items, stress scale, SE scale, PCs scale.

The contents of the survey three months after the training included changes in work performance, changes in participants' feelings toward the students, what is being put into practice with the program content, stress scale, SE scale, PCs scale.

The SE scale comprises 10 items with 4 possible answers ranging from "yes" to "no." The PCs scale is a 4-point scale ranging from "often" to "never," comprising

30 items related to mental and physical symptoms likely to appear in students, such as headache, stomachache, and irritability.

(6) Data Analysis

The stress scale was calculated for each item using the standardized scoring method in the same manner as in Survey 1. For the SE scale, a correction was made for reverse-scored items, scoring from 1 point for "no" to 4 points for "yes," for a total of 10 items. The SE scale ranges from 10 to 40 points. A higher score indicates a higher level of self-esteem. The PCs scale was scored from 0 points for "often" to 3 points for "never," and the total for all 30 items was analyzed. The PCs scale ranges from 0 to 90 points. The higher the score, the more severe the mental and physical complaints. This scale's reliability and validity have been verified in previous studies⁷.

Descriptive statistics were used to evaluate the program items, as well as changes in work performance and changes in feelings toward the students. For the stress scale, SE scale, and PCs scale, a one-way analysis of variance was performed using the time the survey was conducted as a factor.

(7) Ethics consideration

This survey was conducted with the approval of the research ethics committee at the author's institution (approval No. 1274). At the time of recruitment of participants, the authors mailed the document which the authors wrote about the purpose of survey, methods, the program, the inflection of results, and ethical consideration to the principal and *Yogo* teachers.

The authors added ID to participants at random to do the matching of data. The authors prepared for the questionnaire with ID on the desk to get participants directly without going through researchers.

III Results

1. Survey 1

Of the 213 questionnaires collected (recovery rate = 21.3%), excluding 1 blank questionnaire sheet, 212 responses were analyzed (valid response rate = 21.2%).

(1) Outline of the respondents and the circumstances of students with developmental disorders

Table 2 shows the basic attributes of the respondents. **Table 3** shows the situation of special needs education at schools. A total of 191 (90.1%) elementary schools had students enrolled who were diagnosed with developmental disorders. The median percentage of students with developmental disorders was 3.4% (min = 0%, max = 22%). Moreover, 189 (89.2%) elementary schools had students enrolled who were suspected of having developmental disorders, with the median enrollment rate of such students being 4.3% (min =

Table 2 Characteristics of the respondents' attributes

| n = 212 | | |
|---|-------------------|-----------|
| Variables | n (%) | |
| Age | 20~29 | 51(24.1) |
| | 30~39 | 34(16.0) |
| | 40~49 | 46(21.7) |
| | 50~59 | 75(35.4) |
| | 60 years or older | 5(2.4) |
| | N.A. | 1(0.5) |
| Sex | Female | 202(95.3) |
| | Male | 9(4.2) |
| | N.A. | 1(0.5) |
| Years of experience as the <i>yogo</i> teacher | 1~ 5 years | 53(25.0) |
| | 6~10 years | 24(11.3) |
| | 11~20 years | 35(16.5) |
| | 21~30 years | 45(21.2) |
| | 31~40 years | 53(25.0) |
| | N.A. | 2(0.9) |

Table 3 Status of students' enrollment and educational support at schools

| | n (%) | | | |
|--|-----------|----------|----------|----------|
| | Yes | No | N.A. | Total |
| Does your school have students with developmental disorders? | 191(90.1) | 13(6.1) | 8(3.8) | 212(100) |
| Does your school have students suspected with developmental disorders? | 189(89.2) | 11(5.2) | 12(5.7) | 212(100) |
| Does your school have students with developmental disorders and/or suspected it? | 199(93.9) | 5(2.4) | 8(3.8) | 212(100) |
| Does your school create individual guidance plans for all the students with developmental disorders? | 128(75.7) | — | — | 169(100) |
| Does your school create of individual education support plans for all the students with developmental disorders? | 99(67.3) | — | — | 147(100) |
| Does your school nominate of the special support coordinators? ^a | 183(86.3) | 25(11.8) | 4(1.9) | 212(100) |
| Does your school organize the special support cooperation meeting? | 112(52.8) | 80(37.7) | 20(9.4) | 212(100) |

^a support coordinator: Either a teacher or a *yogo* teacher is appointed

0%, max = 47.4%). A total of 199 (93.9%) schools had students enrolled who had developmental disorders and/or suspected developmental disorders, with a median enrollment rate of 8.0% (min = 0%, max = 47.4%).

Table 4 shows association between the age and years of experience of *Yogo* teachers, the number of students with developmental disorders, and the preparation for health examination. If *Yogo* teachers were aged 30 years or older ($p < 0.001$) and had six or more years of experience ($p < 0.01$), they were able to provide good support to students in health examinations. The mean enrollment of students with developmental disorders in regular classes was 18.44 (SD = 19.37). Schools with

more than mean of students with developmental disorders (including undiagnosed cases) had provided good support in health examinations ($p < 0.05$).

Table 5 shows association between teacher placement and *Yogo* teacher's difficulties by the number of students with developmental disorders. Schools with higher than mean of students with developmental disorders (including undiagnosed cases) had a higher number of special education support coordinators ($p < 0.05$). However, the respondents experienced difficulties in cooperating with related organizations outside the school, other students, and parents ($p < 0.05$).

Table 4 Association between the age and years of experience of *yogo* teachers, the number of students with developmental disorders and preparation for health examination

| | | Preparation for health examination (range:2~10 M=5.20) | | χ^2 value | p value |
|---|------------|---|----------------------------|----------------|-----------|
| | | Smooth group(M \geq 6) | Unsmooth group(M \leq 5) | | |
| | | n (%) | n (%) | | |
| Age | n=205 | | | | |
| 22~29 years old | 51(100.0) | 19(37.3) | 32(62.7) | | |
| Adjusted residual | | -3.6 | 3.6 | 12.67 | <0.001*** |
| 30 years or older | 154(100.0) | 101(65.6) | 53(34.4) | | |
| Adjusted residual | | 3.6 | -3.6 | | |
| Years of experience as <i>yogo</i> teacher | n=204 | | | | |
| 1~5 years old | 53(100.0) | 21(39.6) | 32(60.4) | | |
| Adjusted residual | | -3.2 | 3.2 | 10.31 | 0.001** |
| 6 years or over | 151(100.0) | 98(64.9) | 53(35.1) | | |
| Adjusted residual | | 3.2 | -3.2 | | |
| Number of students with developmental disorders | n=190 | | | | |
| Lower(n \leq 18) | 131(100.0) | 68(51.9) | 63(48.1) | | |
| Adjusted residual | | -2.0 | 2.0 | 4.19 | 0.041* |
| Higher(n \geq 19) | 59(100.0) | 40(67.8) | 19(32.2) | | |
| Adjusted residual | | 2.0 | -2.0 | | |

Note: χ^2 analysis, ***p<0.001 **p<0.01 *p<0.05

Table 5 Association between teacher placement and *yogo* teacher's difficulties by the number of the students with developmental disorders

| | | Number of students with developmental disorders (M=18.44) | | χ^2 value | p value |
|--|--|--|---------------------------|----------------|---------------------|
| | | Smaller group(n \leq 18) | Larger group(n \geq 19) | | |
| | | n (%) | n (%) | | |
| Education support coordinator ^a | | | | | |
| Nomination | | 114(85.7) | 59(96.7) | | |
| Adjusted residual | | (-2.3) | (2.3) | — | 0.024* ^b |
| Not nomination | | 19(14.3) | 2(3.3) | | |
| Adjusted residual | | (2.3) | (-2.3) | | |
| Total | | 133(100.0) | 61(100.0) | | |
| Yogo teachers experienced difficulties in cooperating with the organization, other students, and their guardians | | | | | |
| Yes | | 33(28.4) | 48(63.2) | | |
| Adjusted residual | | (2.3) | (-2.3) | 5.20 | 0.023* ^c |
| No | | 83(71.6) | 28(36.8) | | |
| Adjusted residual | | (-2.3) | (2.3) | | |
| Total | | 116(100.0) | 76(100.0) | | |

Note: ^a support coordinator: Either a teacher or a *yogo* teacher is appointed

^b Fisher's exact test ^c χ^2 analysis, *p<0.05

(2) Difficulties and occupational stress of *Yogo* teachers

The means (SD) of *Yogo* teachers' difficulties in learning instruction and occupational stress scale scores were as follows: the difficulty in learning instruction, $M = 53.23$ ($SD = 16.13$); support according to a student's level of cognition and understanding, $M = 9.77$ ($SD = 3.03$); the smoothness of preparation for health examination, $M = 5.17$ ($SD = 2.21$); the difficulty of the cooperation with the staff, $M = 10.98$ ($SD = 2.76$).

The group of respondents who experienced difficulty in teaching had high levels of psychological strain

($p < 0.05$), low job satisfaction ($p < 0.05$), and low support from colleagues ($p < 0.05$) and family/friends ($p < 0.05$), and their satisfaction with work and life was low ($p < 0.05$) (**Table 6**). The group who provided good support according to a student's level of cognitive understanding had a higher level of psychological strain ($p < 0.05$) and a higher perceived physical burden ($p < 0.05$) (**Table 7**). The group who provided good support for students in health examinations had a high psychological work-related strain in terms of amount ($p < 0.01$) and quality ($p < 0.05$) and high stress in the workplace environment ($p < 0.01$) (**Table 8**). The group with a high level of difficulty in coordinating with other teachers in their school had a high

Table 6 Association between difficulties in learning instruction for students with developmental disorders and *yogo* teacher's occupational stress

| <i>Yogo</i> teacher's occupational stress | Score of difficulty (range:15~75 M=53.23) | | t value | p value |
|---|--|--|---------|---------|
| | High score group($M \geq 54$) (n=61) | Low score group($M \leq 53$) (n=70) | | |
| | M (SD) | M (SD) | | |
| Quantitative burden of psychological work | 9.10(2.07) | 8.16(2.05) | 2.61 | 0.01* |
| Job satisfaction | 3.15(0.65) | 3.37(0.65) | 2.10 | 0.038* |
| Support from colleagues | 8.62(1.81) | 9.41(1.76) | 2.54 | 0.012* |
| Support from family/friends | 9.88(1.92) | 10.54(1.78) | 2.03 | 0.045* |
| Satisfaction with work and life | 6.21(1.18) | 6.61(1.14) | 2.43 | 0.016* |

Note: t-test * $p < 0.05$

Table 7 Association between support according to the level of cognitive understanding of students with developmental disorders and *yogo* teacher's occupational stress

| <i>Yogo</i> teacher's occupational stress | Score of support (range:5~25 M=9.77) | | t value | p value |
|---|---|---|---------|---------|
| | High score group($M \geq 10$) (n=97) | Low score group($M \leq 9$) (n=99) | | |
| | M (SD) | M (SD) | | |
| Quantitative burden of psychological work | 9.24 (2.01) | 8.60 (2.01) | 2.23 | 0.027* |
| Physical burden | 2.68 (0.79) | 2.41 (0.73) | 2.46 | 0.015* |

Note : t-test * $p < 0.05$

Table 8 Association between work stress and preparation for health examination

| <i>Yogo</i> teacher's occupational stress | Preparation for health examination (range:2~10 M=5.17) | | t value | p value |
|--|---|--|---------|---------|
| | Smooth group($M \geq 6$) (n=88) | Unsmooth group($M \leq 5$) (n=86) | | |
| | M (SD) | M (SD) | | |
| Psychological work-related strain in terms of amount | 9.34(2.00) | 8.34(2.13) | 3.21 | 0.002** |
| Psychological work-related strain in quality | 9.40(1.70) | 8.74(1.87) | 2.42 | 0.017* |
| Stress in the workplace environment | 2.10(0.85) | 1.78(0.74) | 2.68 | 0.008** |

Note: t-test ** $p < 0.01$ * $p < 0.05$

level of interpersonal stress at work ($p<0.001$) and stress due to the work environment ($p<0.05$), and their level of control at work ($p<0.05$), work aptitude ($p<0.05$), and job satisfaction ($p<0.05$) were low, whereas irritability ($p<0.05$) and anxiety ($p<0.05$) were high. In this group, the levels of support from superiors at work ($p<0.05$), support from colleagues ($p<0.001$), and satisfaction with work and life ($p<0.05$) were low (**Table 9**).

(3) Respondents' attendance at developmental disorders training

When asked if they had ever attended a training session on developmental disorders, 184 respondents (84.4%) answered positively. When asked if they would like to attend such a training in the future, 150 respondents (70.8%) said that they would. The training content that respondents wanted most was specific support, according to 198 (93.4%) respondents, followed by 114 (53.8%) who wanted content on understanding developmental disorders, 86 (40.6%) on the medical system, and 80 (37.7%) on the welfare system. The most popular choice regarding the time when the training should be held was August, during summer vacation, according to 120 (56.6%) participants.

2. Survey 2

(1) Overview of participants in Training Program on Health Support

The participants were 20 female *Yogo* teachers, with a mean age of 38.2 years (SD 9.93). An overview of the participants is shown in **Table 10**.

(2) Evaluation of program content

As shown in **Table 11**, more than 90% of participants rated the program as appropriate. Regarding the program

structure, 95% evaluated the first day as appropriate, and 100% rated the same for the second day.

(3) Changes in the stress scale, SE scale, and PCs scale

Changes in the stress scale, SE scale, and PCs scale were observed before, immediately after, and three months after the training, but the differences were not statistically significant.

(4) Changes in work performance after training participation (Table 12)

In the survey conducted three months after the training, seven respondents said that there had been a slight change in their work performance. These included changes in their professional approach toward the students, information exchange with local medical institutions, implementation of special support education and training in the school, changes in the layout of the school health center, and active involvement with other teachers to facilitate cooperation within the school.

(5) Changes in feelings toward the students after training participation (Table 12)

Three months after the training, six participants showed a slight change in their feelings toward the students. Participants' responses included the fact that they were trying to respond to each individual with an awareness of the characteristics of developmental disorders, that the number of situations where the participant could make an assessment had increased based on what they had learned in the program, that participants were making an effort to revisit what they had learned in the training and keep it fresh in their minds, and that participants wanted to engage with the students while understanding them and their feelings better.

Table 9 Association between difficulties of the cooperation with the staff in the school and occupational stress

| Yogo teacher's occupational stress | Score of difficulties (range:3~15 M=10.98) | | t value | p value |
|------------------------------------|---|---|---------|-----------|
| | High score group(M \geq 11) (n=65) | Low score group(M \leq 10) (n=136) | | |
| | M (SD) | M (SD) | | |
| Interpersonal stress at work | 6.31(1.81) | 5.28(1.50) | 4.23 | <0.001*** |
| Stress due to the work environment | 2.11(0.81) | 1.87(0.80) | 1.99 | 0.048* |
| Irritability | 6.23(2.33) | 5.51(2.18) | 2.13 | 0.035* |
| Anxiety | 6.34(2.26) | 5.65(2.08) | 2.15 | 0.033* |
| Control at work | 8.11(1.95) | 8.72(1.77) | 2.22 | 0.027* |
| Work aptitude | 2.95(0.69) | 3.18(0.65) | 2.30 | 0.022* |
| Job satisfaction | 3.14(0.73) | 3.38(0.63) | 2.36 | 0.019* |
| Support from superiors at work | 7.98(2.20) | 8.92(2.07) | 2.92 | 0.04* |
| Support from colleagues | 8.14(1.96) | 9.18(1.86) | 3.62 | <0.001*** |
| Satisfaction with work and life | 6.03(1.29) | 6.48(1.12) | 2.52 | 0.013* |

Note: t-test *** $p<0.001$ * $p<0.05$

Table 10 Overview of participants in training program on health supports

| | | n = 20 |
|------------------------------------|-------------|----------|
| | | n (%) |
| Age | | |
| | 20~29 | 8(40.0) |
| | 30~39 | 2(10.0) |
| | 40~49 | 8(40.0) |
| | 50~59 | 2(10.0) |
| Years of experience as the teacher | | |
| | 1~5 years | 5(25.0) |
| | 6~10 years | 4(20.0) |
| | 11~20 years | 5(25.0) |
| | 21~30 years | 5(25.0) |
| | 31~40 years | 1(5.0) |
| Number of students enrolled | | |
| | 99 or less | 1(5.0) |
| | 100~435 | 14(70.0) |
| | 436~705 | 4(20.0) |
| | 706 or more | 1(5.0) |

Table 11 Evaluation of program contents

| | | | | | n=20 |
|---|-------------|------------------|------------|-----------------|------|
| | Appropriate | well appropriate | not either | not appropriate | |
| | n (%) | n (%) | n (%) | n (%) | |
| First day | | | | | |
| Characteristics and support | 17(85.0) | 3(15.0) | 0(0.0) | 0(0.0) | |
| Understanding clinical symptoms and support | 7(35.0) | 11(55.0) | 2(10.0) | 0(0.0) | |
| Health support techniques (1) | 17(85.0) | 3(15.0) | 0(0.0) | 0(0.0) | |
| Program structure | 15(75.0) | 4(20.0) | 1(5.0) | 0(0.0) | |
| Second day | | | | | |
| Guidance and support systems | 9(45.0) | 10(50.0) | 1(5.0) | 0(0.0) | |
| Health support techniques (2) | 11(55.0) | 8(40.0) | 1(5.0) | 0(0.0) | |
| Group discussion | 12(60.0) | 6(30.0) | 2(10.0) | 0(0.0) | |
| Program structure | 11(55.0) | 9(45.0) | 0(0.0) | 0(0.0) | |

Table 12 Changes after training of participants (three months after)

| | | | | | | | n = 20 |
|---|---------------|----------|------------|----------|------------|---------|--------|
| | Significantly | Slightly | not either | not much | not at all | N.A | |
| | n (%) | n (%) | n (%) | n (%) | n (%) | n (%) | |
| Changes in work performance | 0(0.0) | 7(35.0) | 9(45.0) | 2(10.0) | 0(0.0) | 2(10.0) | |
| Changes in feelings toward the students | 0(0.0) | 6(30.0) | 10(50.0) | 1(5.0) | 1(5.0) | 2(10.0) | |

IV. Discussion

In 93.9% of the schools, students with developmental disorders (including suspected case) were enrolled in regular classes. It became clear that *Yogo* teachers experienced difficulty in relation to the students with developmental disorders, and this difficulty is stress factors. This result is consistent with the result of the previous survey⁹⁾. As there are many public elementary schools that currently have students with developmental disorders enrolled, it is essential to enhance the special support education system. As part of this, it is necessary to prepare and implement individual guidance plans and education support plans. Training on understanding and guidance related to students with developmental disorders is conducted by the education committees of local governments; thus, many respondents had already completed this training. However, there were difficulties with guidance on developmental disorders with a high degree of individual specificity. High stress factors and stress reactions were observed among *Yogo* teachers who experienced difficulty in providing individual guidance for students with developmental disorders and in coordinating with school teachers, as well as *Yogo* teachers who were able to support students adequately, thereby indicating that such teachers had low scores in terms of stress-buffering factors. It can be inferred that these difficulties turn into stress and caused stress reactions in *Yogo* teachers. Future research should examine further training and implementation of specific guidance content to reduce feelings of difficulty and stress among *Yogo* teachers. This indicates the need to develop a program for *Yogo* teachers that enables them to support students with developmental disorders. This also suggests that it is important for all teachers in a school to understand developmental disorders and work together based on this common understanding.

These findings further indicate that social capital should be cultivated by establishing regional special support coordination councils to promote local understanding and support. In schools with a large number of students with developmental disorders, *Yogo* teachers find it difficult to cooperate with relevant organizations outside the school, thereby indicating that schools overall should consider measures to deepen their cooperation with relevant local organizations.

In order to reduce burdens of *Yogo* teachers, it is necessary for *Yogo* teachers to correctly understand developmental disorders and to acquire appropriate support skills. Therefore, the authors created a program that incorporates health support program and held a training. This program was positively evaluated by 90% of the participants as appropriate.

Health support program was positively evaluated by 90% of the participants as appropriate. In formulating this program, based on the results of the national survey conducted in Survey 1, the authors adopted “specific support techniques,” which comprised the most requested training by the respondents. From the survey, the authors inferred the following: ①Health support techniques for students with developmental disorders should be based

on theory and models. ②It should be possible to use such techniques in school health centers. ③Positive evaluations were obtained by enabling participants to experience support techniques in the training. Further, the authors found cooperation with teachers, parents, and professional institutions inside and outside the school to be essential for supporting the health of students with developmental disorders and that the introduction of group work, wherein trainees exchanged information, provided a sense of security through learning information from other schools, which led to positive evaluations of the program. These results suggest that this program is useful for developing skills to support students with developmental disorders. The positive evaluation of this program also suggested that, suggesting that it could be effective as a program for *Yogo* teachers. Future research may consider implementing this health support program with a larger number of *Yogo* teachers.

One of the roles of the *Yogo* teacher is the coordination function. In order to protect the health of students, it is necessary to cooperate with people inside and outside the school. Inclusive education will continue to be promoted in the future. Actively acting as a coordinator is one of the challenges for *Yogo* teachers.

This study (survey1 and survey2) was supported by a Grant-in-Aid for Scientific Research (Grant No. 17K12565) from the Ministry of Education, Culture, Sports, Science and Technology.

Acknowledgments

The authors would like to thank *Yogo* teachers and the principal who cooperated with this research.

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