The Telehealth Program for Kindergarten and Nursery Teachers in Charge of Children with Behavioral Problems

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ABSTRACT

This study provided a telehealth program for kindergarten and nursery teachers in charge of children with, or suspected of having, developmental disabilities. We examined teacher participation, behavior intervention plans (BIP), practice, and improvement of children's behavior. Six sessions of online lectures and two online consultations based on functional behavioral assessments (FBA) were held. All ten teachers conducted the FBA, and seven created the BIP. Additionally, six out of seven teachers recorded their children's problem behaviors, showing improvement in the problem behavior of these children. Moreover, the non-targeted problem behaviors also showed improvement following the intervention.

Key words   developmental disabilities; problem behaviors; teacher training; telehealth

Owing to the effects of COVID-19, people with developmental disabilities, their families, and their supporters are under great physical and psychological stress.[1] Among them, the provision of telehealth from medical institutions is a significant help for schools and families.

In 2013, Japan's Ministry of Education, Culture, Sports, Science and Technology reported that 3.6% of students in the country had behavioral problems in regular classes in both elementary and junior high schools. These students were suspected of having attention deficit hyperactivity disorder (ADHD) or autism spectrum disorder (ASD). In recent years, there has been an increase in intervention studies using telehealth to address problem behaviors exhibited by children with developmental disabilities; however, most of these studies have been conducted with parents and very few with teachers.[2, 3] It would be useful to establish an effective telehealth consultation in schools where COVID-19 limits the availability of itinerant consultation. This study provided a telehealth program for kindergarten and nursery teachers in charge of children with, or suspected of having, developmental disabilities.

SUBJECTS AND METHODS
Subjects
The participants were kindergarten and nursery teachers who are in charge of children with problem behaviors. Participants were recruited from social networking sites related to child development and from the author's website where a document was presented explaining the purpose of the study and the conditions for participation. In total, ten preschool teachers participated, and their mean years of job experience were 17.2 years (SD: 7.98); none had special education licenses. Of the children supervised by these teachers, two were diagnosed with ASD and one with intellectual disorders. The study was approved by the review board of Tottori University (approval number 2163). All participants and parents provided written informed consent.

Materials
Groupware GETA
General Empowerment Tool for Abilities (GETA)[4] is groupware for online teaching. It is a multi-purpose learning support system that has a user authentication system and is equipped with a function for communication between users, storage and provision of teaching material contents, syllabi, reports, and file management functions.

Strategy sheet
The strategy sheet[5] is a support tool developed to establish appropriate behaviors based on a functional assessment of the problem behavior. The A4-sized sheet is divided into top and bottom portions. The top portion consists of three frames based on the FBA: A (Antecedent), B (Behavior), and C (Consequence). The lower portion of the sheet provides space for the BIP. It includes four columns: antecedent strategy (environmental adjustments that prevent problem behaviors from occurring), appropriate alternatives for problem behaviors, consequence strategy (reinforcement of

Table 1. Profile and results of the participants

	Teacher			Children			Achievement				
ID	Age	Gender	Years of experience	Age years;month	Gender	Diagnosis	Lecture	FBA	Consultation	BIP	BR
A	30s	Female	11	5;11	Male	–	✔	✔	✔	✔	✔
B	30s	Female	18	5;11	Female	–	✔	✔	✔	✔	✔
C	50s	Female	28	5;03	Male	–	✔	✔	✔	✔	✔
D	30s	Female	10	4;06	Male	ASD	✔	✔	✔	✔	✔
E	40s	Female	20	3;08	Male	ASD	✔	✔	✔	✔	✔
G	20s	Female	7	3;00	Male	–	✔	✔	✔	✔	✔
H	30s	Female	15	5;06	Male	–	✔	✔	✔	✔	
I	50s	Female	30	5;06	Male	ID	✔	✔			
J	30s	Female	10	4;07	Male	–	✔	✔			
K	40s	Female	23	5;00	Male	–	✔	✔			

ASD, autism spectrum disorders; BIP, behavioral intervention plan; BR, behavior record; FBA, functional behavioral assessment; ID, intellectual disorders.

appropriate behaviors), and prompting for appropriate alternative behaviors or responses to the occurrence of problem behaviors.

Procedure
Pre-post evaluation
We asked participants to record the problem behavior for 5 days before and after the program on the behavior recording sheet.

Online lectures and online consultations
The content for online lectures was created using PowerPoint. The online lectures could be viewed regardless of progress made on the submitted assignments. From the second session onward, lectures were delivered in the order of the contents in the strategy sheet. The topic of the first online lecture session was understanding and teaching children with developmental delays and biases. Specifically, it covered the characteristics of ASD and ADHD and the importance of adaptive behavior as an alternative to environmental adjustment and problem behaviors, including visual support. The second session included exercises to define problem behaviors as concrete behaviors. Participants practiced describing Antecedent (A), Behavior (B), and Consequence (C) according to the A-B-C chart. The third session organized the environmental adjustment to prevent problem behaviors and demonstrated how to provide instructions before such behaviors occurred. In the fourth session, the participants learned strategies for teaching incompatible appropriate behaviors with problem behaviors, and functional equivalents for

appropriate behaviors to replace problem behaviors. The reinforcement and token economy system for appropriate behavior was explained in the fifth session. The sixth session described extinction techniques when a problem behavior occurs, prompt procedure to lead to the appropriate behavior, and pacifying methods.

A simple confirmation test was set up after each lecture. After completion of the six online lecture sessions, the two authors facilitated an online group consultation. The lead facilitator was a university faculty member who is an expert in behavioral approaches to developmental disorders and a licensed clinical psychologist with 30 years of clinical experience. The sub-facilitator was a graduate student specializing in behavior analysis with a teaching license and five years of experience working in schools. Each participant gave a presentation on their child's recent problem behaviors and interventions using the strategy sheet, and the facilitators made comments. The other participants also shared their ideas for solutions for the presenter. After the online consultation, the participants revised the contents of their strategy sheets. Each session lasted about 90 minutes, and was conducted twice.

RESULTS
The check marks in Table 1 indicate that the participants achieved the content for each program. All participants were able to engage with the online lectures. The average viewing time was 479 min (SD = 293), and the average access time per viewing session was 25.5 min (SD = 27.2). The total number of logins was 351, and the most common daily login time was 21:00–22:00. Also, 74%
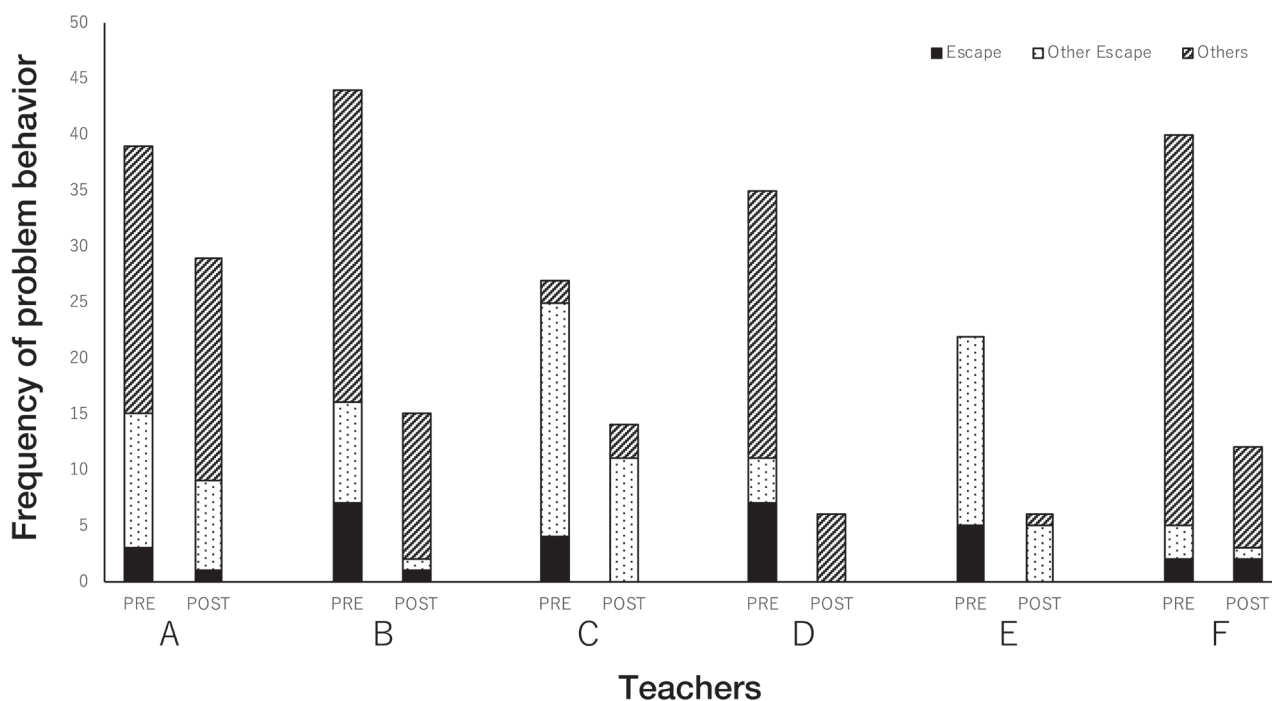
Fig. 1. Frequency of children's problem behaviors for 5 days pre-post evaluation. Escape = Escape behavior as the targeted problem behavior. Other Escape = Non-targeted escape behavior. Other = Other problem behavior without escape behavior.

of the logins occurred on weekends. All participants completed the FBA; however, *I, J,* and *K* did not submit their homework completely in the online lectures. Further, these three teachers did not complete the BIP because they could not participate in the online consultation, and thus, the record of problem behavior was not completed. The reasons were that *I* found it "difficult to balance with the workplace," *K* lacked equipment operation skills, and *J* was unknown. Of the seven teachers who created the BIP, six, excluding H, recorded the problem behavior for 5 days before and after. H could not record the behavior because the children left the kindergarten during the online consultation period. Figure 1 shows the frequency of problem behaviors of six children for 5 days pre and post evaluation. The black graph represents the targeted problem behavior on the strategy sheet, and all teachers chose escape or avoidance behavior from classroom activities. The gray graphs display escape or avoidance behaviors of settings not covered in the strategy sheet, and the white graphs are problem behaviors other than the targeted behaviors—aggression, self-injurious behaviors, and crying. As a result of online lectures and consultations, a decrease occurred in the children's target behaviors and other problems of all teachers who created the BIPs and recorded the target behaviors.

DISCUSSION
In this study, all 10 preschool teachers attended online lectures and consultations, and seven completed their BIPs based on the FBA. Additionally, six out of seven teachers recorded their children's problem behavior, showing improvement in the behavior. It may be a characteristic of Japanese preschool teachers that many escape or avoidance behaviors were adopted as target behaviors. For the three teachers who dropped out, it would be necessary to provide them with support for watching videos, submitting assignments, and attending web conferences. Further, it is possible that the teachers' access time was more burdensome on weekend nights. In the future, it will be necessary to collaborate with schools and boards of education to arrange a system that allows participation during working hours. Moreover, it can be a significant burden to record children's behavior while participating in this program. In the future, we hope to use apps to record behavior.[6]

Improvements in non-target behaviors show the positive outcome as the generalizations of this intervention. This result needs to be analyzed in more detail. This study employed a pre-post design. To prove the program's effectiveness, it is necessary to increase the number of participants and perform a follow-up test to compare the design between groups. It is also important to measure changes in teachers' knowledge and stress.

Furthermore, future studies must analyze the rigor of interventions for teachers' performance based on the BIP to ensure that results have long-term applications.

The authors declare no conflict of interest.

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