**Effectiveness of the Parent-Child Social Skills Training Program for Children with Developmental Disorders: A quasi-experimental design**

Kimiko Shibata¹, Hirokazu Nishikata², Sayoko Kawabata³, Hiroko Miyadera⁴, Yohei Kuriki²

¹ Saitama Prefectural University
² Bunkyo Gakuin University
³ University of North Carolina Chapel Hill
⁴ Gunma Paz University

**Abstract:** Purpose: This study explored the effectiveness of a new parent-child social skills training program addressing social skills and parenting stress among children with developmental disabilities and their parents.

Methods: Participants were 15 children (14 boys, 1 girl; 7–9 years old) with diagnoses related to developmental disability and a Full Scale IQ ≥ 70 and 17 parents (2 fathers, 15 mothers; 34–51 years old). Each session of this program lasted 110 minutes and occurred every 1–3 weeks for about 2 months. Social skills were measured by self-evaluation (Social Skills Scale for Elementary School Children, Social Skills Self-Rating Scale for Adults: SS-A), information provider’s evaluation (Vineland Adaptive Behavior Scales, Second Edition, Japanese version: VABS-II), and practitioner’s evaluation (Role-Play Test for Children and Parents: RPT-CP), and parenting stress was measured with the Parenting Stress Index (PSI) before, immediately after, and at a 3-month follow-up after intervention.

Results: VABS-II scores were significantly lower after the intervention ($z = −2.58$, $p = .011$, $r = −.65$). Children’s RPT-CP scores also improved ($z = 1.705$, $p = .08$). The scores on SS-A, parents’ RPT-CP, and PSI improved significantly at follow-up ($z = 2.832$, $p = .005$, $r = .71$; $z = 2.91$, $p = .004$, $r = .71$; $z = −2.34$, $p = .019$, $r = −.57$), and parents’ RPT-CP scores were significantly higher at follow-up than post-intervention ($z = 2.333$, $p = .02$, $r = .58$).

Conclusions: This program effectively improved parents’ social skills after the intervention, and parenting stress decreased at follow-up.

Keywords: developmental disorder, social skills training, parent, communication, elementary school

---

**Introduction**

The Manual for the Diagnosis and Statistics of Mental Disorders, 5th Edition [1] classifies attention deficit hyperactivity disorder, autism spectrum disorder (ASD), and developmental coordination disorder as neurodevelopmental disorders described as “hidden” neuro-biological developmental disorders with high morbidity. Their prevalence is 5–6%, and they are some of the most common disorders affecting children of school age [1]. Approximately 6.5% of Japanese children have neurodevelopmental disorders [2], and many are enrolled in regular classes. Their social skills may be slightly below average in preschool, but difficulties establishing interpersonal relationships become evident in elementary school [3]. As a result, children with neurodevelopmental disorders experience isolation and rejection from peers, often leading to learning difficulties, interpersonal difficulties, school refusal, and depression. Some core deficits associated with ASD improve, but social deficits show relatively little improvement as the child ages [4]; therefore, social skills are prioritized as treatment targets [5, 6].

Parents of children with neurodevelopmental disorders, including ASD and mild intellectual disability, experience substantial childcare stress resulting from
the child’s behavior [7, 8] and are more depressed than parents of typically developing children [9, 10]. Parental mental health is related to parenting behavior [11], which in turn affects child development [12]. A study on the resilience of mothers of children with ASD [13] found that those with good social adaptation showed similarities in parenting, indicating that mothers can communicate with their children, find strengths in their children, and help them improve their skills. Kurani reported that when parents of children with severe intellectual disabilities actively worked with their children with an emphasis on social skills, children’s development was promoted [14]. In other words, it is necessary to provide a program for the parents to promote the development of children with neurodevelopmental disorders and help them acquire more effective communication skills. Parents and children can use social skills at home to communicate with each other, and can it also be applied at school as the next step.

Social skills training (SST) can help children with neurodevelopmental disorders manage difficulties in interpersonal relationships and acquire social skills [15, 16]. The role of parents in SST for children with neurodevelopmental disorders has often been indirect, such as helping children use their learned skills [17, 18]. To enhance the effects of SST interventions, it has been suggested that parents be included in SST [19].

We have developed a parent-child SST program for learning social skills [20] for parents and children to learn the same target skills, do homework, and role-play to improve the target skills. This study aimed to examine the effects of this parent-child SST program on children with neurodevelopmental disorders and their parents, focusing on social skills and parenting stress.

Methods

Study Design

A quasi-experimental design (one group, before-and-after design) was used, and assessments were conducted at three time periods: before and immediately after the intervention, and at 3-month follow-up. Five occupational therapists at Bunkyo Gakuin University conducted the trial from August 2016 to March 2019. Ethical approval was granted from the ethics committee of the Faculty of Health Science Technology, Bunkyo Gakuin University.

Participants

Participants were children with developmental disabilities and their parents. Inclusion criteria included children in grades 2–4 with diagnoses related to neurodevelopmental disorders, with a Full Scale Intelligence Quotient (FSIQ) ≥ 70 on the Wechsler Intelligence Scale for Children-Third Edition. Participation was available to all parents. Open recruitment was conducted through the Bunkyo Gakuin University website, which included a program overview. Applicants filled out an application submitted by fax or email. The contents of the application form were age, grade, gender, diagnosis, FSIQ, and elementary school type. Those meeting the inclusion criteria were notified by email of the pre-intervention evaluation schedule. At the time of the pre-intervention evaluation, parents provided informed written consent. Information on the study was also given to the children, who provided written assent. Participants were free to withdraw from the study without consequence, in line with ethical considerations in research with human subjects in Japan.

A total of 16 children and 18 parents initially participated in the SST program. One child and one parent only participated twice and were excluded. Consequently, the participants were 15 children (14 boys, 1 girl; 7–9 years old) and 17 parents (2 fathers, 15 mothers; 34–51 years old) who completed the whole program (Table 2). Before the parent-child SST program, children were reported to have problems communicating with peers, cried, and were isolated. The age range was chosen because children around age 9 can objectively perceive themselves, but do not yet have a positive awareness of themselves, and tend to have a sense of inferiority. Therefore, promoting children’s understanding of the viewpoint of others, respect for oneself and others, and compassion for others is important in this age. Therefore, we targeted children around age 9 (2nd–4th graders), in accordance with national guidelines by the Ministry of Education, Culture, Sports, Science and Technology [21].

Parent-Child SST Program

The program was conducted with six groups of two to four children. Each session lasted 110 minutes and occurred every 1–3 weeks for about 2 months (six sessions per group). The SST for children comprised two parts: learning time (to learn skills) and playtime (to apply skills). After observing children’s learning time, the parents participated in a session for themselves. There were five SST target skills: seeing and recognizing, expressing positive feelings, making requests, expressing unpleasant feelings, and listening to others (Table 1), based on previous studies implementing programs for parents and children [17, 18, 22], basic skills in social skills education [23], and four basic skills by Bellack [16]. The first author, an occupational therapist certified as instructor of the Japanese Association of Social Skills Training (JASST), was in charge as the
leader of the learning time in the SST for children and the SST for parents, and the co-leaders of the sessions were two occupational therapists who had completed a beginner training course in the JASST. In the children’s program, three to four occupational therapists who specialized in the treatment of children with developmental disabilities participated as auxiliary staff.

Each session of the learning time involved a warm-up exercise, reporting homework, target skill learning, and explanation of the next homework. As a warm-up, children engaged in light exercise such as tug-a-war aimed at enhancing concentration for learning. To learn the target skill, an explanation of the skill’s significance was given, and then a “bad model” (i.e., unfavorable behavior) was performed by staff. The children confirmed the points to be improved, and then a “good model” (i.e., preferable behavior) was presented. After the model presentations, children performed the role-play themselves, received feedback on the good points, and advice for improvement from the participants and staff. They then engaged in another role-play. Finally, homework was set up to use the target skill every day. The children were to practice the skills at home first, and then at school and in the community. Records were maintained on homework sheets, and parents were encouraged to help their children complete them.

The leader of the SST playtime for children was the co-leader of the learning time who also specializes in treatment of children with developmental disabilities. During the SST playtime for children, the staff actively reinforced and encouraged the use of the target skill in play, particularly when it was not being used. Furthermore, a table was presented on a large sheet of paper to provide visual feedback regarding the usage of the target skill in play.

In the parent program, after observing the children’s learning time for the purpose of preparing them for skill learning, they practiced the skills in the same way that the children learned them. The differences in the learning time were the content of the warm-up (parents talked about what made them happy recently to have a positive focus), model presentation (only “good model” presentation), and homework (helping with the child’s homework and recording the responses and impressions of using the learned skills in their life). The staff actively provided positive feedback after homework reports and role-plays, and praised the challenge of acquiring skills.

In the final session, the target skills were reviewed, and craft activities were completed by parents and children using these skills. To reinforce skill usage, children received a sticker as a token from their parent when they used learned skills; when skills were used by parents,
they received stickers from the staff.

**Outcome Measures**

In the evaluation of social skills, it is necessary to measure the learned target skills accurately and assess general social skills widely and comprehensively [24]. Therefore, we selected methods for measuring social skills by referring to Aikawa’s [25] three types of social skill evaluation: self-evaluation (e.g., self-report and self-monitoring), information provider’s evaluation (e.g., parents and peers related to children), and practitioner’s evaluation (e.g., interview, behavior observation, and role-play methods). In this study, children’s social skills were measured through self-evaluation, information provider’s evaluation, and practitioner’s evaluation, while parents’ social skills were assessed through self-evaluation and practitioner’s evaluation. Evaluations were performed at three time points: before and immediately after the intervention, and at 3-month follow-up.

**Self-Rating Scale of Social Skills for Elementary School Children.** The Social Skills Scale for Elementary School Children (SSS-E) [26], a 15-item self-rating questionnaire using a 4-point Likert scale, was used for self-evaluation of social skills by the children. The SSS-E focuses on two main aspects of social behavior: the extent to which the respondent has acquired the actions necessary to maintain smooth human relationships and the extent to which he/she has not acquired actions hindering human relationships. Higher scores on the SSS-E indicate greater skills. The SSS-E was created for typically developing elementary school children; the instruments’ validity and reliability were verified by Shimada [26].

**Social Skills Self-Rating Scale for Adults.** The Social Skills Self-Rating Scale for Adults (SSS-A) [27], a 35-item questionnaire using a 4-point Likert scale to assess social skills, was used to evaluate the social skills of the parents by self-evaluation. Higher scores on the SS-S indicate greater skills. The SS-S was created for university students, and Aikawa et al. [27] examined its validity and reliability.

**Vineland Adaptive Behavior Scales, Second Edition.** The Japanese version of the Vineland Adaptive Behavior Scales, Second Edition (VABS-II) [28] was used for the information provider’s evaluation of the social skills of children. It involves a semi-structured interview with parents, and scores are calculated on a 3-point Likert scale. The regional standard score of VABS-II has a mean of 100, a standard deviation of 15 and is normally distributed. The adaptive behavior subscale (VABS-A) evaluates three areas: interpersonal relations, play/leisure time, and coping skills. The higher the score, the more desirable the behavior. The maladaptive behavior subscale (VABS-MA) examines internalized and externalized maladjusted behavior. The higher the score, the less desirable the behavior.

**Role-Play Test for Children and Parents.** The Role-Play Test for Children and Parents (RPT-CP), developed by the authors based on a role-play test for individuals with schizophrenia [29], was used for practitioners’ evaluations of social skills. The test evaluates participants’ social skills through interaction with the examiner. The RPT-CP comprises five scenarios, including one practice item and four skills—listening to others, making requests, expressing positive feelings, and expressing unpleasant feelings—for each child and their parents. The evaluation consists of 13 items in the areas of situational recognition (e.g., place, partner, facial expression, purpose of the scene), coping skills (e.g., proposing coping method, correcting coping method), subjective evaluation (e.g., self-efficacy, anxiety), and transmission skills (e.g., gaze, facial expression, voice change, social validity, achievement of purpose). The RPT-CP is acted out between an examiner and the child/parent and videotaped for subsequent scoring. The RPT-CP typically takes 15–20 minutes for each participant. The examiner was the first author, but in order to avoid information bias, we asked another occupational therapist and two clinical psychologists to be evaluators. The evaluators were selected based on their experience as SST leaders. They watched the video to evaluate situational recognition and coping skills using a 3-point Likert scale, and subjective evaluation and transmission skills on a 5-point Likert scale. A total score for 11 items was calculated, excluding the subjective evaluation from the analysis because the purpose of the evaluation was to obtain objective data regarding skills. When the inter-rater reliability of the RPT-CP was assessed, the intraclass correlation coefficient was .858, confirming high inter-rater reliability.

**Parenting Stress Index-Japanese Version.** The Japanese version of the Parenting Stress Index (PSI) [30] was used to assess parental stress. It is a 78-item questionnaire using a 5-point Likert scale that assesses two domains of parental stress: child domain (PSI-C), which evaluates the adaptability of the child and how much he/she annoys the parents, and the parent domain (PSI-P), which measures the competence of the parents and their attachment to the child. A total score can also be calculated by adding the two domain scores, and the higher the score, the higher the stress.

**Statistical Analysis**

The total scores on the RPT-CP, SSS-E, VABS-A, VABS-MA, and SS-S, and the total score and subscale scores of the PSI before and after the intervention and at
follow-up were calculated. Because of the small sample size and use of ordinal scales, the Wilcoxon test was chosen to compare scores before and after the intervention, and scores after the intervention and at follow-up. Statistical significance was set at two-tailed \( p < .05 \). Statistical analyses were performed using SPSS version 25 for Microsoft Windows. Mizumoto’s method was used was to calculate the effect size [31].

**Results**

**Children’s Social Skills**

Table 3 shows the results of the evaluation performed in this study. The SSS-E score, which was a self-evaluation, showed no significant differences after the intervention or at follow-up. The information provider evaluations, the VABS-II and VABS-A scores decreased significantly after the intervention \( (z = -2.58, \ p = .011) \), and the effect size was moderate \( (r = .65) \); however, there was no significant difference in the VABS-MA scores. At follow-up, neither the VABS-A nor VABS-MA scores changed. Regarding the RPT-CP, which was the practitioner’s evaluation, the target skills scores after the intervention showed a tendency to rise \( (z = 1.71, \ p = .088) \), but they did not change at follow-up.

**Parents’ Social Skills**

The SS-A score, which was a self-evaluation, showed no significant changes after the intervention, but increased significantly at follow-up \( (z = 2.91, \ p = .004) \), and the effect size was moderate \( (r = .71) \). The RPT-CP scores indicated that the parents’ target skills increased significantly after the intervention \( (z = 2.83, \ p = .005) \), and the effect size was moderate \( (r = .71) \). Moreover, at follow-up, the target skills scores increased significantly \( (z = 2.33, \ p = .020) \), and the effect size was moderate \( (r = .58) \).

**Parental Childcare Stress**

After the intervention, there were no significant differences in total PSI, PSI-C, or PSI-P scores. At follow-up, the total PSI scores decreased significantly \( (z = -2.34, \ p = .019) \), and the effect was moderate \( (r = -.57) \), but there were no significant differences in the PSI-C and PSI-P scores.

**Discussion**

In this study, we explored the effectiveness of a new parent-child SST program to determine if there was an improvement in parental and child social skills and a reduction in parenting stress, and whether the effects were maintained. As a result, in the case of children, the social skills showed a tendency to improve after the intervention, as indicated by the RPT-CP scores, but scores decreased on the VABS-A and did not change on the SSS-E. At follow-up, no changes were seen in the SSS-E, VABS-A, VABS-MA, and RPT-CP scores. For parents, social skills after the intervention improved as measured by the RPT-CP but did not change according to the SS-A scores. At follow-up, both RPT-CP and SS-A scores improved, indicating that parents’ social skills further improved. Parental stress did not decrease after the intervention, but a significant reduction was seen at follow-up.

Interestingly, parents’ self-evaluation did not show improvement in general social skills immediately after intervention but did at follow-up, even though the

---

**Table 3**  
Outcome Measures at Pre/Post Treatment and 3-Month Follow-Up

| Measure      | Pre-treatment M(SD) | Post-treatment M(SD) | Follow-up M(SD) | Pre to post p-value | Post to follow-up p-value |
|--------------|---------------------|----------------------|-----------------|---------------------|---------------------------|
| SSS-E        | 36.4 (5.8)          | 37.5 (5.3)           | 36.9 (6.9)      | .343                | .932                      |
| SS-A         | 86.4 (14.1)         | 87.8 (15.0)          | 93.2 (12.5)     | .244                | .004                      |
| VABS-II      | 75.3 (10.4)         | 72.9 (9.3)           | 72.3 (9.4)      | .011                | .550                      |
| VABS-A       | 20.1 (2.99)         | 20.3 (3.0)           | 19.5 (3.1)      | .596                | .204                      |
| RPT-CP       | 94.6 (20.5)         | 105.5 (14.6)         | 110.7 (18.2)    | .088                | .209                      |
| Children     | 122.8 (8.4)         | 130.1 (10.7)         | 135.4 (8.6)     | .005                | .020                      |
| Parents      | 234.2(33.4)         | 235.3(32.9)          | 225.6(37.1)     | .776                | .019                      |
| PSI total    | 113.2 (14.6)        | 111.4 (12.3)         | 106.2 (14.4)    | .463                | .052                      |
| PSI-P        | 121.1 (26.3)        | 123.9 (26.3)         | 119.4 (26.0)    | .394                | .058                      |

Note. M, mean; SD, standard deviation; RPT-CP, Role-Play Test for Children and Parents; RPT-C, Role-Play Test for Children; RPT-P, Role-Play Test for Parents; SSS-E, Social Skills Scale for Elementary School Children; VABS-A, Vineland Adaptive Behavior Scales, Second Edition, Japanese version, Adaptive Behavior Subscale; VABS-MA, Vineland Adaptive Behavior Scales, Second Edition, Japanese version, Maladaptive Behavior Subscale; SS-A, Social Skills Self-Rating Scale for Adults; PSI, Parenting Stress Index; PSI-C, Parenting Stress Index, Child Domain; PSI-P, Parenting Stress Index, Parent Domain.
RPT-CP score indicated immediate improvement. This suggests that there was a time lag between the practitioners’ evaluation and self-awareness. The experience of receiving praise from the staff and other parents during the program could have shifted the parents’ focus of attention from wanting to enhance children’s behavioral changes to wanting to improve their own social skills. The parents did not immediately recognize their improvement but were able to continue using the target skills in their daily life until they were able to realize the effects. To reduce mothers’ stress and anxiety about parenting, it is effective to consider childcare and acquire parenting skills [32]. The decreased PSI score indicated that the improvement in the parents’ self-assessment of social skills led to enhanced parenting skills, which resulted in a reduction in parenting stress.

Regarding the social skills of the children, the practitioner’s evaluation showed a significant tendency to improve after the intervention, but the information provider’s evaluation worsened, and the self-evaluation showed no change. The reason may be that the evaluator’s subjectivity may have influenced the scores: the parents’ expectation or changes of perception from the program experience for the information provider evaluation and the desires of the child for the self-evaluation [25]. Additionally, in a study in which SST was provided to children with ASD and psychological education was given to their parents, there was no change in children as indicated by the information provider evaluation using the Child Behavior Checklist [18]. However, improvement in the target skills according to the practitioner’s evaluation is required. Thus, it may be necessary to revise the program to examine whether this goal is met. Many of the previous studies on SST for neurodevelopmental disorders involved training programs with more than 10 sessions [33–35]. Improvement in social skills may be difficult to achieve in such a short period. Currently, in Japan, programs aiming to support parents must be provided over a short period of time because of difficulty in maintaining parents’ motivation and attendance to all the sessions [36]. As mentioned earlier, given that the social skills of parents improved after this short-term intervention, if parents use social skills in the home and become a good model, the social skills of their children may improve. Furthermore, a modification in the presentation of homework and its step-to-step stages may lead to the improvement of target skills. In the future, we would like to verify the effects by setting a long-term follow-up, such as 6 months and 1 year.

The participants in this study responded to open recruitment, and it can be predicted that the parents were highly motivated, for example, wanting their children to acquire social skills, or perhaps parents themselves seeking to improve their skills. Therefore, the observed effects of the parent-child SST program may have been limited to the parents, namely the improvement in parents’ social skills and reduction in parenting stress. It is not clear whether the children were highly motivated even in open recruitment.

In this study, a scale had to be developed to evaluate the role-play of children with neurodevelopmental disorders and their parents. The RPT-CP is an important scale that can be used to evaluate whether the skills targeted in SST have been acquired [25]. This fact indicates that not only social skills training but also social skills evaluation measures in this area are lacking. It may not be possible to accurately evaluate all the target skills using practitioners’ evaluation of behavior. Social skills include social cognition (receiving skills) to recognize oneself and the present situation; social problem solving and decision-making (processing skills) to consider options for achieving personal goals in specific situations; and expressive skills (sending skills) exchanged in actual situations [15]. The RPT-CP involves these three information-processing processes, and we would like to develop it for standardization in the future.

This study had several limitations. First, the sample size was small, and there was no control group in this study. In the future, the effects of the program should be verified using a controlled research design. Second, the criteria for selecting children in this study was only based on children having neurodevelopmental disorders and their FSIQ. During this program, some children were joking and unable to concentrate. Furthermore, the target children had various diagnoses of neurodevelopmental disorders. We would like to consider adaptation criteria for this program in future studies, such as limiting target children to those having ASD.

Conclusions

The features of the parent-child SST program implemented in this study were that parents and children learned the same skills using SST, playtime for the generalization was set up in accordance with the target skills, and homework was performed at home. This study showed that parents’ social skills improved after the intervention and at follow-up, and parenting stress decreased at follow-up. Since this program can be implemented over a short period in six sessions, it is considered easy to implement in clinical settings. However, in order to improve children’s social skills, it may be necessary to modify the program in ways such as how to present homework. By implementing this program, it is expected that the skills learned will be used in the home and that communication between parents and children
will increase.

Acknowledgments

We would like to express our deep appreciation to the parents and children who cooperated in implementing this program. We are also grateful to the staff members who participated in the program from early morning: Rina Kobayashi, Kenya Kobayashi, Misako Mitano, Maki Uchizawa, Hanae Hayashi, and the student staff. The abstract of this paper was presented at the 50th the Japanese Occupational Therapy Congress in Sapporo, Japan.

Conflict of Interest

The authors disclose no conflict of interest.

References

[1] American Psychiatric Association. Diagnostic and Statistical Manual for Mental Disorders. 5th ed. Arlington: American Psychiatric Publishing; 2013.

[2] Ministry of Education, Culture, Sports, Science and Technology [online]. Tokubetsushikenkyouikunitsu: Tuujiyouno Gakkyuunnizaiseseikisu ru Hattatusyougai no Kanouseinoru Tokubetunakyouikutekikisen wo Hituyoutosuru Jidousei- tonikansuru Tyusanituite (2012) [cited 2016 November 28]. Available from: https://www.mext.go.jp/a_menu/shotou/tokubeta/material/1328729.htm

[3] Church C, Alisanski S, Amanullah S. The social, behavioral, and academic experiences of children with Asperger syndrome. Focus Autism Other Dev Disabl. 2000; 5(1): 12–20.

[4] Anderson DK, Liang JW, Lord C. Predicting young adult outcome among more and less cognitively able individuals with autism spectrum disorders. J Child Psychol Psychiatry. 2014; 55(5): 485–94.

[5] Lang R, Machalicek W, Rispoli M, Regester A. Training parents to implement communication interventions for children with autism spectrum disorders: a systematic review of training procedures. Evid Based Commun Assess Interv. 2009; 3: 174–90.

[6] Pituch, KA, Green VA, Didden R, Lang R, O‘Reilly MF, Lancioni GE, et al. Parent reported treatment priorities for children with autism spectrum disorders. Res Autism Spectr Disord. 2011; 5(1): 135–43.

[7] Tone Y. The quality of life and stress of mother with a handicapped child (in Japanese). Bulletin of Japanese Redcross Musashino Junior College of Nursing (nihon- sekiyuujimusasinotankidaigakukyuu). 2002; 15: 17–24.

[8] Wakimizu R. Survey on empowerment of families of children with special health care needs: comparison between children with severe physical and intellectual disabilities and children with developmental disability (in Japanese). The Journal of Ambulatory and General Pediatrics (gairaisyouyou). 2012; 15(1): 25–30.

[9] Breen MJ, Barkley RA. Child psychopathology and parenting stress in girls and boys having attention deficit disorder with hyperactivity. J Pediatr Psychol. 1988; 13(2): 265–80.

[10] Koege RL, Schreibman L, Loos LM, Durlach-Wilhelm H, Dunlap G, Robbins FR, et al. Consistent stress profiles in mothers of children with autism. J Autism Dev Disord. 1992; 22(2): 205–16.

[11] Lovejoy MC, Graczyk PA, O’Hare E, Neuman G. Neuman GI. Maternal depression and parenting behavior: a meta-analytic review. Clin Psychol Rev. 2000; 20(5): 561–92.

[12] Maccoby EE. Parenting and its effects on children: on reading and misreading behavior genetics. Annu Rev Psychol, 2000; 51(1): 1–27.

[13] Kobayashi T, Suzuki K, Moriyama K, Kaga M, Inagaki M. Support for parents of children with developmental disabilities: effective attitudes and parenting skills based on 23 mothers’ experiences (in Japanese). J Child Health (syouunihokenkenkyu). 2014; 73: 484–91.

[14] Kurani D, Nerurka A, Miranda L, Jawadwala F, Prabhulak D. Impact of parents’ involvement and engagement in a learning readiness programme for children with severe and profound intellectual disability and complex needs in India. J Intellec Disabil. 2009; 13(4): 269–89.

[15] Liberman RP. Psychiatric Rehabilitation of Chronic Mental Patients (in Japanese). Tokyo: Souzousyuppam; 1993.

[16] Bellack AS, Musser KT, Gingerich S, Agresta J. Social Skills Training for Schizophrenia, 2nd ed. New York: Guilford; 2004.

[17] Uemura S, Iwasaka H, Miyazaki Y. Apply social skills training for children with autism spectrum disorders and their parents with a focus on social skills enhancement. Int J Environ Res Public Health. 2016; 13(6): 590–604.

[18] Okuno H, Yamamoto T, Tatsumi A, Mohri I, Taniike M. Simultaneous training for children with autism spectrum disorder and their parents with a focus on social skills enhancement. Int J Environ Res Public Health. 2016; 13(6): 590–604.

[19] Okajima J, Suzuki S. Social skills training for children and adolescents with autism spectrum disorders: a review (in Japanese). Japanese Journal of Counseling Science (kaunseringukenkyu). 2012; 45(4): 229–38.

[20] Shibata K, Nishikata H, Anzai N. Usefulness of SST programs for children with developmental disorders and their parents: A pilot study for a parents-children SST program (in Japanese). Japanese Occupational Therapy Research (sagyouryouhouhou). 2018; 37(5): 557–63.

[21] Ministry of Education, Culture, Sports, Science and Technology [online]. Kodomonotokuinikansuruokondankai: Kodomonon Hattudankaigotono Tokutyouyoutou Jyuusisubeki-
Okajimaii J, Kato N, Yoshitomi Y, Otani R, Yamamoto J, Sakuta R. Effectiveness of a combination of social skills training for children with autism spectrum disorders along with parent training for their parents: a preliminary study of the Dokkyo-NAKAMA program (in Japanese). Official Journal of the Japanese Society of Child Neurology (kodomonokokorotokarada). 2014; 23(1): 49–57.

Aikawa M, Satou S. Jissenso-syarusukirukyouikutyuu-gakkou Taijinkankeinouryoku wosoderujujugounosai-zensen (in Japanese). Tokyo: Tosyobunkasya; 2006.

Adachi T. Social Skills Scales for Japanese School Children: a review from the viewpoint of their applicability to social skills education (in Japanese). Japanese Journal of Educational Psychology (Kyouikushinrigakukenkyuu). 2013; 61: 79–94.

Aikawa M, Tsumura T. Syakaitekisukiru to Taijinkankei (in Japanese). Tokyo: Seishin Shobo, Ltd; 1996.

Shimada H, Takasaki Y, Okayasu T, Sakano Y. The buff- ering effects of acquired social skills on psychological school stress in elementary school children (in Japanese). Jap J Behav Ther (koudouryouhoukenkyu). 1996; 22: 9–19.

Aikawa A, Fujita M. An attempt to construct a social skills self-rating scale for adults (in Japanese). Bulletin of Tokyo Gakugei University Section 1. Science of Education (toukyougakugeidaigakukyoudaitibumon). 2005; 56: 87–93.

Sparrow S, Cicchetti DV, Bella DA. Vineland Adaptive Behavior Scales, 2nd ed. Japanese Version. Tokyo: Nihon Bunka Kagakusha; 2014.

Sasaki T. The reliability and validity of the Revised Role Play Test for assessment of social skills in schizophrenia (in Japanese). Clinical Psychiatry (sheshinigaku). 2006; 48: 1191–8.

Abidin R. Parenting Stress Index (in Japanese). Tokyo: Koyomondai Kenkyujo; 2015.

Mizumoto A, Takeuchi O. Basics and Considerations for Reporting Effect Sizes in Research Papers. Study in English language teaching. 2008; 31: 57–66.

Shimada Y, Sugahara K, Hashimoto M. Literature review on the actual state and effect of child-care support for mothers experiencing childcare-related stress, anxiety, and difficulties (in Japanese). The Bulletin of Science of Nursing Research (ashikagadaigakukangogakukenkyu- kyou). 2019; 7: 69–81.

Dekker V, Nauta MH, Mulder EI, Timmerman ME, de Bildt A. A randomized controlled study of a social skills training for preadolescent children with autism spectrum disorders: generalization of skills by training parents and teachers? BMC Psychiatry. 2014; 14(1): 189.

Bonete S, Molinero C, Mata S, Calero D, Gómez-Pérez. Effectiveness of manualized interpersonal problem-solv- ing skills intervention for children with autism spectrum disorder (ASD). Psychothema. 2016; 28(6): 304–10.

Jonsson U, Olsson NC, Coco C, Görling A, Flygare O, Råde A, et al. Long-term social skills group training for children and adolescents with autism spectrum disorder: a randomized controlled trial. Eur Child Adolesc Psychiatry. 2019; 28(2): 189–201.

Nakada Y. Usefulness of the Shortened Program for Parent Training of Developmental Disorders (in Japanese). The Journal of the Psychological Institute, Rissho University (rissyoudaigakushinrigakukyuyokiyokyou). 2010; 8: 55–63.