Social Skills Training Using the Thai Version of UCLA PEERS® in Thai Adolescents with Autism Spectrum Disorder

Napat Sittanomai, M.D.*, Elizabeth Laugeson, PsyD., Sasitorn Chantaratin, M.D.*, Jariya Tarugsa, M.D.*, Duangduean Sainampran, M.Sc.*, Vipavee Sathirangkul, M.Sc.*, Suvimon Apinantanakul, M.Ed.*, Nattawee Songrujirat, R.N.*, Vitharon Boon-yasidhi, M.D.***

**Division of Child and Adolescent Psychiatry, Department of Pediatrics, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok 10700, Thailand. **UCLA PEERS® Clinic, Semel Institute for Neuroscience and Human Behavior, University of California Los Angeles, Los Angeles, CA, USA.*

ABSTRACT

Objective: To study the feasibility and effectiveness of the Thai version of UCLA PEERS® in Thai adolescents with autism spectrum disorder (ASD).

Materials and Methods: The UCLA PEERS® was modified to fit with Thai culture. Twelve adolescents, aged 11-18 years old, with ASD participated in this modified 10-session weekly group intervention during March to October 2015 at Siriraj Hospital, Bangkok, Thailand. Feasibility was assessed by parent satisfaction and session attendance rate. Effectiveness was assessed by social skills improvement rated by parents, Vineland Adaptive Behavior Scales (VABS), the Children's Depression Inventory (CDI), and the Clinical Global Impression-Improvement Scale (CGI-I).

Results: All enrolled participants completed the study. Parents' satisfaction with the program was 81.92%. The session attendance rates ranged from 83.3 to 100%. At the end of intervention, all of the skills trained in the program were rated as improved by at least half of parents. At 4-month follow-up, all but two skills (entering conversation and handling bullying) were still reported as improved by more than 50% of parents. VABS raw scores significantly increased in the domain of communication (95% confidence interval (CI): -2.25 to -0.89; p=0.036), daily living skills (95% CI: -3.70 to -0.47; p=0.016), and socialization (95% CI: -1.77 to -0.40; p=0.005), and significantly decreased in maladaptive behaviors domain (95% CI: 0.24 to 2.10; p=0.002). Six adolescents had CGI-I scores of very much improved or much improved.

Conclusion: The Thai version of UCLA PEERS® is a feasible and effective social skills intervention for Thai adolescents with ASD.

Keywords: Social skills training; Program for the Education and Enrichment of Relational Skills (PEERS®); Thai adolescents; autism spectrum disorder (Siriraj Med J 2021; 73: 471-477)

INTRODUCTION

Autism spectrum disorder (ASD) is a neurodevelopmental disorder characterized by deficits in social communication and restricted, repetitive patterns of behavior and interests, as well as impairments in multiple other areas.[1] Social skills deficit is one of major areas of impairment in ASD, particularly in adolescence. Difficulty in achieving social competence can adversely impact peer acceptance, and

Corresponding author: Vitharon Boon-yasidhi
E-mail: vitharon.boo@mahidol.ac.th
Received 12 March 2021 Revised 12 May 2021 Accepted 31 May 2021
ORCID ID: http://orcid.org/0000-0002-6573-8044
http://dx.doi.org/10.33192/Smj.2021.61

may lead to anxiety, depression, and low self-esteem.[2] Therefore, an effective social skills training intervention should be part of a comprehensive treatment plan for adolescents with ASD.

While there have been no well-studied social skills training interventions available for ASD patients in Thailand, a multidisciplinary care team at Siriraj Hospital initiated a pilot program of social skills intervention for adolescents with ASD, using the UCLA Program for the Education and Enrichment of Relational Skills (PEERS®) developed by researchers from University of California, Los Angeles (UCLA). The program has been systematically proven in different cultural and linguistic contexts.[3] It is a manualized 14- weekly sessions treatment employing various evidence-based strategies to teach social skills to adolescents with ASD, and emphasizing parental involvement in coaching the adolescents.[4,5] Our group modified the UCLA PEERS® to suite with Thai culture. The objective of this pilot study was to assess the feasibility and effectiveness of this modified (Thai) version of UCLA PEERS® in Thai adolescents with ASD.

MATERIALS AND METHODS

Participants

Twelve adolescents with ASD, aged 11-18 years old, and their parents participated in a 10-week Thai version of UCLA PEERS® at the Division of Child and Adolescent Psychiatry, Department of Pediatrics, Faculty of Medicine Siriraj Hospital, from March to October 2015. All participants were previously given a diagnosis of ASD by a certified child and adolescent psychiatrist. To be eligible to the program, participants must have an ability to communicate verbally, an intelligence quotient (IQ) above the intellectual disability level (>70), and no comorbid severe psychiatric or medical conditions. This study was approved by the Siriraj Institutional Review Board (Si 267/2017).

Intervention

Prior to the intervention, the researchers conducted a brief survey in the participating parents to explore the participants' social skills deficits related to the skills listed in the original UCLA PEERS® manual.[6] Modifications were then made according to the deficit social skills in the participants and Thai cultural context. The number of intervention sessions was changed from the original 14 to 10, accordingly.

Some of the modifications made were as follow: (1) in the session focusing on electronic communication, didactic content related to making phone calls and leaving voice messages was substituted with communication networks popular among Thai adolescents (e.g., Facebook, LINE, and Instagram); (2) the homework assignment to have a get-together, possibly in one's home, was changed to a "going out" with friends in settings outside of the home, since home-based get-togethers are less common in Thailand; and (3) the period of time conducting the intervention was changed from during school days to during summer vacation in order to circumnavigate problems associated with school schedules and transportation difficulty in Bangkok. A description of the intervention content in targeted lessons is outlined in Table 1.

The adolescents were participating in this modified 10-session weekly group intervention led by the investigators, one of whom (NS) received a UCLA PEERS® provider certification. Each weekly session consisted of a 90-minute adolescent group and a separate 60-minute parent group. The session included a lesson on targeted social skills, and a homework assignment to promote the generalization of the learned skills to real-life settings. After the first week, each session started with a review of the assigned homework from the previous session, followed by didactic teaching and demonstrated role playing, and behavior-oriented rehearsal exercises to practice newly learned skills. The investigators met after each weekly session to review the intervention process, and to make minor adjustments to the intervention manual according to the observed responses of the participants.

Measurements

Demographic and clinical data were collected from medical records and parent intake records.

Participation and parent satisfaction

Participation in the program was abstracted from weekly participation logs. After the intervention was completed, parents were asked to rate their satisfaction with the program on a 5-point Likert scale (5 indicating the most satisfaction).

Parent report of changes in social skills

Parents were asked to rate the changes in their child's social skills relative to each of the 10 targeted lessons (as improved, unchanged, or worse) at the end of intervention and at 4-month follow-up.

Vineland Adaptive Behavior Scales (VABS)

The VABS measures adaptive behavior skills needed for everyday living in the domains of motor skills, communication skills, daily living skills, and socialization, and a separate domain of maladaptive behaviors, with test-retest reliability of 0.8-0.9.[7] Higher scores represent better adaptive functioning. The VABS was administered through a parent interview by a clinical psychologist at baseline and at the end of intervention.

TABLE 1. Topics and Abbreviated Content of the Thai PEERS®

Session	Targeted Lessons	Contents	Homework
1	Sharing of information	Sharing information with peers to find a common interest	Practicing sharing information on the phone with an assigned group member
2	Two-way communication	Key elements of having a two-way conversation with peers Parents identify teen activities that could lead to potential sources of friendship	Practicing sharing information on the phone with an assigned group member
3	Electronic communication and choosing appropriate friends	Appropriate use of electronic and online communication (e.g., telephone, email, LINE, Facebook, Twitter, Instagram, and Skype) Parents and teens identify interest-based extracurricular activities that could lead to potential sources of friendship	Beginning to pursue extracurricular activities, and sharing information with members of this group
4	Peer entry I: Entering conversations	Precise steps to entering conversations with peers	Practicing entering conversations with peers
5	Peer entry II: Exiting conversations	Assessment of peer receptiveness when entering a conversation, and how to exit a conversation when not being accepted	Practicing entering and exiting conversations with peers
6	Good sportsmanship	The rules of good sportsmanship	Practicing good sportsmanship at home
7	Rejection I: Teasing and embarrassing feedback from peers	How to appropriately respond to teasing How to differentiate between teasing and embarrassing feedback, and how to modulate your response	Practicing coping with teasing appropriately in relevant situations
8	Rejection II: Physical bullying and changing a bad reputation	Strategies for coping with physical bullying and how to change a bad reputation	Practicing new strategies for coping with bullying and physical threats in relevant situations
9	Good sportsmanship practicum: Playing chairball	Good sportsmanship rehearsal	Practicing good sportsmanship
10	Coping with disagreements & program conclusion	Elements necessary for resolving arguments and disagreements with peers	Practicing coping with arguments with parents and peers via the role-playing exercise in relevant situations

Children's Depression Inventory (CDI)-Thai version

The Children's Depression Inventory (CDI) consists of 27 self-reported items measuring symptoms of depression in children and adolescents aged 7-17 years.[8] Each item is scored from 0 to 2 to define the severity of depressive symptoms within the past two weeks. The higher the scores indicate more severe depressive symptoms. In this study, the participants completed the Thai version of the CDI[9], at baseline and the end of intervention.

Clinical Global Impression (CGI) scale

The CGI is a clinician-rated 7-point scale for rating global improvement in the patient's illness. The CGI-I rates the patient's illness improvement or decline relative to the patient's baseline, as follows: 1 = very much improved; 2 = much improved; 3 = minimally improved; 4 = no change; 5 = minimally worse; 6 = much worse; and, 7 = very much worse[10]. The CGI-I was administered after the intervention was completed.

Statistical analysis

Demographic and clinical data were analyzed and described using descriptive statistics. Pre- and post-intervention scores were analyzed using either paired t-test or a Chi-square test, and results are shown as either number with percentage or mean ± standard deviation. Data analyses were performed using PASW Statistics version 18.0 (SPSS, Inc., Chicago, IL, USA). A p-value less than 0.05 was regarded as being statistically significant.

RESULTS

Participant's mean age was 14.8 years (range: 11-18), and 83.8% were male (Table 2). Nine participants had comorbid psychiatric diagnoses (4 ADHD, 4 anxiety disorders, and 2 mood disorders). Participants had a mean IQ of 94.7±20.21 and a baseline VABS score of 58.75±16.90. The three most common reported social

TABLE 2. Demographic and Clinical Characteristics of the Enrolled Adolescents (N=12)

Characteristics	
Age (yrs), mean±SD (range)	14.8±1.99 (11-18)
Male gender, *n* (%)	10 (83.8%)
Living with biological parents, *n* (%)	12 (100%)
Father's education, *n* (%)	
High school or lower	4 (33.3%)
University	8 (66.7%)
Mother's education, *n* (%)	
High school or lower	3 (25.0%)
University	9 (75.0%)
Family monthly income (Thai baht), *n* (%)	
10,000-50,000	6 (50.0%)
>50,000	6 (50.0%)
Number of siblings, *n* (%)	
0	3 (25.0%)
1	6 (50.0%)
2	3 (25.0%)
Number of years receiving treatment, mean±SD	6.80±4.93
Educational stage, *n* (%)	
Elementary	3 (25.0%)
Secondary	9 (75.0%)

Note. SD = standard deviation; CGI-S = Clinical Global Impression-Severity scale.

skill problems were peer rejection, inability to handle disagreements with peers, and difficulty developing friendships.

Participation and parent satisfaction

All participants completed the program. The session attendance rates ranged from 83.3% to 100%, and the individual participant attendance rates ranged from 70% to 100%. The rate of homework completion was 60%. The average parent satisfaction score was 4.10 out of 5. Common reasons for the satisfaction included applicability of the program content, structured home practice, and parent coaching guidance.

Outcome measurements

Data specific to social skills reported as improved by the parents are shown in Table 3. All of the 10 social skills trained in the program were rated as improved by at least half of the parents. The skills rated as improved by the highest percentage of parents (83.3%) included trading information, two-way communication, and good sportsmanship. At the 4-month follow-up, all but two skills (entering conversation and coping with physical bullying) were still reported as improved by more than 50% of parents.

Post-intervention CGI-I was rated as very much improved or much improved in 6 adolescents (50%). Mean CDI scores decreased from 18.08 at baseline to 16 at post-intervention; however, the change was not statistically significant (p=0.345).

Significant improvements were observed in the raw scores of the VABS in the daily living skill domain, the socialization domain, and the communication domain (p's < 0.05). The maladaptive behavioral domain score decreased significantly from 5.33 to 4.17 (p< 0.05). Changes in the VABS domain scores after the intervention are shown in Table 4.

DISCUSSION

This study examined the feasibility and effectiveness of the Thai version of UCLA PEERS®, a parent-assisted social skills intervention, in 12 Thai adolescents with

TABLE 3. Social Skills Reported as Improved by Parents of Adolescent Participants

Skills	After 10th session (N=12) *n* (%)	At 4-month follow-up (N=9) *n* (%)
Sharing of information	10 (83.3%)	5 (55.6%)
Two-way communication	10 (83.3%)	7 (77.8%)
Electronic communication and choosing appropriate friends	8 (66.7%)	5 (55.6%)
Peer entry I: Entering conversations	6 (50.0%)	2 (22.2%)
Peer entry II: Exiting conversations	6 (50.0%)	6 (66.7%)
Good sportsmanship	6 (50.0%)	5 (55.6%)
Rejection I: Teasing and embarrassing feedback from peers	9 (75.0%)	5 (55.6%)
Rejection II: Bullying and changing a bad reputation	9 (75.0%)	4 (44.4%)
Good sportsmanship practicum: Playing chairball	10 (83.3%)	7 (77.8%)
Coping with disagreements	9 (75.0%)	5 (55.6%)

TABLE 4. Pre- and Post-Intervention Domains on the Vineland Adaptive Behavior Scales

Measurement	Pre-intervention	Post-intervention	*p*-values	95% CI
Daily living skills domain	131.83	133.92	**.016**	[-3.697, -0.470]
Personal	71.67	71.92	.082	[-0.537, 0.037]
Domestic	21.83	22.33	**.026**	[-0.928, -0.072]
Community	38.33	39.67	**.031**	[-2.525, -0.142]
Socialization domain	89.50	90.58	**.005**	[-1.772, -0.395]
Interpersonal relationships	37.75	37.83	.777	[-0.716, 0.550]
Play and leisure time	26.25	26.83	**.027**	[-1.087, -0.080]
Coping skills	25.83	26.08	.082	[-0.537, 0.037]
Communication domain	116.08	117.25	**.036**	[-2.245, -0.89]
Adaptive behavior composite	58.75	59.67	.255	[-2.597, 0.763]
Maladaptive behavior domain	5.33	4.17	**.019**	[0.235, 2.099]

Note. CI = confidence interval.
p-values < .05 are in boldface, indicating statistical significance.

ASD. To our knowledge, this is the first study of parent-assisted social skills training program in adolescents with autism in Thailand. We found a high attendance rate (>80% attendance with no dropouts) and high parent's satisfaction. We also found improvements of the participant's social skills after the intervention, measured by parent report, VABS, and CGI-I.

The high participation rate and high parent satisfaction demonstrates feasibility of the Thai version of UCLA PEERS® in Thai adolescents with ASD. This might be due to the fact that this intervention emphasizes parental involvement in the social skills training process in everyday living, and the skills taught in the program address the common social problems reported by parents. The program includes several activities that have been proven effective for teaching social skills to children and adolescents with ASD. Moreover, the evidence-based strategies used in the program were modified to fit with Thai culture and social context.

Effectiveness of this intervention is demonstrated by the improvement of the participant's social skills reported by parent and the CGI-I rated by treating psychiatrists. It is also supported by more objective measures of adaptive functioning on the VABS, which revealed improvements in socialization and other adaptive domains, as well as a decrease in maladaptive behaviors. Our findings are consistent with other studies on effectiveness of the PEERS® intervention in the USA and other countries.[11-14] While other studies demonstrated a decrease in depression score[3], post-intervention CDI scores did not decrease significantly in the present study, possibly due to lack of power related to small sample size. The participant's CDI scores were not significantly elevated at baseline. Furthermore, the commitment by parents to participate in the training and to coach their children was encouraging, and would be expected to have positively influenced the observed improvement in social skills in this study. Conversely, the effectiveness of Thai PEERS® for youth whose parents do not fully participate in treatment is unknown and requires further investigation.

It was also observed that the areas of social skills with the highest percentage of improvement according to parent reports, such as coping with rejection, good sportsmanship, and coping with disagreement, were the skills identified to be the most problematic by parents at baseline. This suggests that the contents of the intervention are well-suited to meet the needs of the parents. The difference in the percentage of parents

that reported improvement in each skill is likely due to session attendance. More specifically, parents and adolescents that didn't attend a certain session would presumably have been less likely to report improvement for that training topic. We found that more than 50% of the parents still reported improvements in most of the trained social skills at 4-month follow-up, suggesting this social skill intervention program has some long-term effects. However, since the percentage of improved cases decreased, continued parent coaching and/or boosting interventions may be required to enhance the sustainability of the social skills improvement.

This study has some limitations. First, the sample size was small and there was no control group. Second, the improvement in social skills reported by parents was subjective, which renders the present study vulnerable to some potential parent bias. Third, information from other sources, such as teachers or parents/caregiver unaffiliated with the program was not collected. Lastly, other co-occurring interventions that could have contributed to improvements in social skills were not controlled in the current study.

Despite these limitations, this study demonstrates that the Thai version of UCLA PEERS® is feasible in Thai adolescents with ASD and this intervention is effective in improving social skills in this population. Future studies using larger randomized controlled trials with independent raters, more objective measures, and longer follow-up assessment periods would further elucidate the effectiveness of this intervention.

ACKNOWLEDGMENTS

The authors gratefully acknowledge the adolescents and their parents for participating in this study. We would like to express our gratitude to Julaporn Pooliam of the Division of Clinical Epidemiology, Department of Research and Development, Faculty of Medicine Siriraj Hospital for her assistance with statistical analysis.

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