

## **Role of the Peers Program for Social Skills Training for Adolescents with Autism Spectrum Disorder**

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### **Abstract**

This study aims to examine the efficacy of the PEERS intervention in enhancing social skills among adolescents diagnosed with Autism Spectrum Disorders (ASD). The current study employed an experimental research methodology to determine the effects of the variables. The sample size was determined using G power. 182 individuals were selected, including 60 ASD adolescents and 40 parents for the experimental group (EG). The control group (CG) consisted of 41 parents of 41 adolescents with ASD. A purposive sampling technique was employed to select individuals within the age range of 15 to 50 years old. The data were collected from two schools in Islamabad and one in Rawalpindi, Pakistan. The data was examined utilizing SPSS version 25, and the ANOVA test was employed to check the analysis results. The results demonstrated that the PEERS program is successful in improving the overall socialization of parents and adolescents with ASD. The present study indicated that PEERS has a crucial impact on improving socialization skills in parents and adolescents with ASD.

**Keywords:** PEERS, interventions, socialization skills, parents, teacher, Adolescents with ASD

### **Introduction**

Autism Spectrum Disorder (ASD) is a neurological condition marked by challenges in social communication, limited and repetitive interests, and difficulties in processing sensory information (APA, 2023). Individuals with autism often encounter mental and behavioral difficulties (Lai et al., 2019). Up to 70% of children with autism may experience a psychiatric issue alongside their autism. The most often observed co-occurring conditions include attention deficit hyperactivity disorder (ADHD), anxiety disorders, and oppositional defiant

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disorder (ODD) (Salazar et al., 2015; Simonoff et al., 2008). Evidence-based practices (EBPs) can also be associated with challenging behaviors (BTC). Anxiety is associated with oppositional behavior, hyperactivity, aggressiveness, and failure (Sukhodolsky et al., 2020; Tarver et al., 2021). While behavioral methods have shown some success in addressing certain aspects of ASD such as self-stimulation and language difficulties (Hanley, Iwata, & Thompson, 2001); deficits in social reciprocity and social communication continue to be significant issues that require urgent treatment (Weiss, & Harris, 2001). With the increasing emphasis on integrating adolescents with ASD into regular classrooms (Williams et al., 2005) along with the improved awareness and diagnosis of individuals with higher functioning ASD (Croen, Grether, Hoogstrate, & Selvin, 2002), there is a greater need for evidence-based social skills treatments for this growing population of mainstreamed youth (Williams et al., 2007).

Adolescents with ASD frequently experience challenges in social interactions and have limited quality of friendships. Laushey and Heflin (2000), state that the primary difficulties faced by individuals with ASD are related to their impaired social functioning. Individuals with ASD frequently exhibit challenges in social communication, including difficulties in understanding and interpreting social cues, as well as impaired social cognition. Frequent social communication deficits often include perseveration on particular subjects of interest and challenges in transitioning between conversational topics (Elder et al., 2006), inadequate speech prosody, characterized by the absence of natural fluctuations in voice pitch and intonation during speech (Starr et al., 2003) inability to engage in reciprocal conversations and take turns during interactions (Church, Alisanski, & Amanullah, 2000; Klin, & Volkmar, 2003), excessive verbosity when conversing with peers (Elder et al., 2006), and difficulties in comprehending and employing effective communication strategies (Winter, 2003). Impaired social cognition sometimes encompasses challenges in expressing emotions, comprehending others' emotions, and empathizing (Krasny et al., 2003; Frith, 2004), along with a general deficiency in grasping social causality. An absence of social cue awareness manifests in various ways, such as difficulty discerning the significance and interpretation of nonverbal aspects of social interaction, as well as an incapacity to gauge the formality of social occasions and behave properly (Griffin et al., 2006).

The everyday care and support necessary for the effective execution of any therapeutic intervention are provided by families to individuals with ASD (Carbone et al., 2010). Thus, when creating an intervention, it has been recognized that all family members' needs should be considered (Knoche et al., 2012). Several highly regarded therapies for autism spectrum disorders (Carbone et al., 2010)—

including TEACCH (Kalyva, 2011), Portage (Hecimovic, & Gregory, 2005), and Applied Behavioral Analysis (Fine, 1991)—emphasize the value of active parental involvement in the therapeutic process, which follows from appropriate collaboration with mental health specialists. Many parents, however, assert that their involvement in their children's therapy is limited to briefing meetings held every six months and that they are unaware of the possibility of being more actively involved in the healing process (Lovaas, 1987). Parents should not be viewed as clients or observers, but rather as partners in the development, application, and assessment of the therapeutic approach (Schopler, Mesibov, & Hearshey, 1997).

An approach that makes use of conventional teaching techniques for CBT is called the Program for the Education and Enrichment of Relational Skills (PEERS). This curriculum is grounded in facts and emphasizes the acquisition of skills necessary for fostering and sustaining friendships, as well as effectively managing peer disagreements and rejection (Laugeson, & Frankel, 2010). Children and adolescents with ASD struggle with a variety of issues, including their inability to respond to jokes, taunting, bullying, threatening comments, mocking, and embarrassing feedback. UCLA PEERS is a very successful and evidence-based program for autistic children to improve their social skills and lead healthier lives (Laugeson, 2014).

The UCLA PEERS, the intervention selected for this study, is a parent-assisted CBT based intervention for adolescents with social skills impairments and ASD. It has demonstrated success in both teaching and practicing social skills to form long-lasting friendships. It looked at the longevity and efficiency of a modified PEERS program (Laugeson, & Frankel, 2010; Laugeson, 2014). Previous studies have shown that employing behavioral modeling, coaching, behavioral rehearsal, and performance feedback in a small-group setting are successful intervention techniques for instructing social skills to adolescents with common deficits (Gresham, Sugai, & Horner, 2001). Nevertheless, a crucial element that is absent in the majority of these social skills programs is the methodical participation of parents in the intervention. Parents can significantly influence their children's friendships through active guidance, supervision, and support in cultivating a suitable peer group (Frankel et al., 2010; O'Connor et al., 2006; Laugeson et al., 2009; Wood et al., 2009; Solomon et al., 2004). Frankel and Myatt (2003) were the first to introduce a parent-assisted approach to fostering friendship skills through the Children's Friendship Training Program (CFT).

Children with ASD who are in elementary school and have high cognitive functioning have shown improvement in social skills with this evidence-based

approach (Frankel et al., 2007; Frankel et al., 2010). Additionally, children diagnosed with Fetal Alcohol Spectrum Disorders (FASD) and ADHD have found it beneficial (O'Connor et al., 2006). These trials additionally demonstrated that treatment improvements persisted for a minimum of three months after therapy concluded. A previous randomized controlled trial (Laugeson et al., 2009), looked at how well PEERS worked for high-functioning adolescents with ASD to improve their social competence and friendship skills. According to the results, teenagers in the treatment group had a considerable increase in the frequency of their friend gatherings, a greater understanding of social skills, and an overall improvement in their social skills as assessed by the Social Skill scale. The effectiveness of the PEERS intervention for social skills training in adolescents with ASD is investigated in this study.

## **Methodology**

### **Research design**

The current study used a true experimental research method with an EG and CG of participants. Between pre-and post-testing of EG participants, the modified UCLA PEERS program was implemented with parents and adolescents with ASD. The key participants in the adapted UCLA PEERS program were parents and adolescents, who were given activity sheets and homework assignments to help them teach social skills to adolescents with ASD. However, testing was conducted both before and after the intervention to collect data and determine the changes between pre- and post-intervention outcomes.

### **Study Participants**

The sample size was determined using G power. A total of 182 participants were selected for the study. This included 60 ASD adolescents and 40 parents for the EG. Whereas the CG consisted of 41 parents of 41 adolescents with ASD with an age range of 15-50 years old by using a purposive sampling technique. The recruitment of these adolescents was conducted in two schools in Islamabad and one school in Rawalpindi. Individual introductory sessions have been performed with parents to enlighten them about the goal of the study.

### **Inclusion and exclusion criteria**

The study included adolescents (who could communicate verbally and were diagnosed with mild ASD by the school using the DSM assessment checklist for ASD), parents of adolescents with mild ASD diagnoses who were fluent in English, and those who provided a signed consent form to participate in the adapted version of UCLA PEERS. Children, adolescents, and adults (who were unable to communicate verbally and were diagnosed with moderate to severe ASD

by the school using the DSM assessment checklist for ASD) and parents of adolescents, and adults with other intellectual or neurodevelopmental disabilities (e.g., ADHD, severe ASD) who were not proficient in English were excluded from study.

### **Measures of the current study**

#### **Demographic information sheet**

A preliminary interview has been completed to establish a positive relationship and obtain permission for the study. The demographic data sheet was utilized to collect demographic information, including age, gender, education, family structure, socioeconomic status, occupation, and number of children.

#### **Quality of Socialization Questionnaire (QSQ)**

The QSQ was initially created by Donnellan et al. (1983), and Dr. Laugeson updated it in 2018. A self-report questionnaire called the QSQ was created to gauge how people with developmental impairments felt about their subjective experiences with relationships and social interactions. Since then, several demographics, including kids and teenagers, have used the QSQ with adaptations and modifications. There are two versions: the one that parents or other adult caregivers must report (QSQ-Adult) explains the ability of interactions with friends and family. The other, however, is said by the adolescent to assess the caliber of his connections and social contacts. The three subscales that make up the QSQ are the conflict scale, the social reciprocity scale, and the social initiation scale. Significant conflict is indicated by a conflict score of 3.5 or higher for any socialization. The scale has a reliability of 0.77.

#### **Procedure**

The study comprised three primary stages: pre-testing (baseline, conducted one week before the intervention phase), implementation of the modified UCLA PEERS program, and post-testing (conducted one week following the intervention period). The study incorporated the demographic data sheet, QSQ-Adolescents, and QSQ-Adults, to collect pre- and post-testing data. This data was used to evaluate the social skills proficiency, comprehension, and knowledge of adolescents with ASD, as well as the overall well-being of their parents. The present study consists of three primary stages:

#### **Pre-testing**

Pre-testing phase participants (79 parents and 1001 ASD adolescents) were involved, as were an introductory session and a pre-testing session to collect baseline data. To gather the baseline data for the study, participants from both

groups (i.e., EG and CG) were asked to reply on the QSQ-Adolescents, QSQ-Adults, and demographics data sheet (described above). By giving adolescents with ASD the QSQ-Adolescents, QSQ-Adults on parents and baseline data were gathered. In the pre-testing session, participants from both groups voluntarily participated and provided baseline data.

### **The Adapted UCLA PEERS Model (Intervention Phase)**

Following the pre-testing phase, participants in EG were given a thorough explanation of the intervention phase. The UCLA PEERS model was modified to add 14 weekly sessions (1 session per week). These sessions primarily involved parents and adolescent psychiatrists to improve the complete knowledge, understanding, and socialization quality of adolescents with ASD. Throughout the intervention phase, a trained therapist who was certified in the UCLA PEERS model by the original UCLA PEERS model's developer (Dr. Laugeson) educated parents and teachers about conversational skills, peer relationships, rejection, and problem-solving skills, and the therapist provided homework assignments to both teachers and parents along with the activity sheets.

### **Post-testing Phase**

Post-testing data was obtained by administering QSQ-Adults to parents and QSQ-Adolescents to adolescents with ASD. Participants in both groups willingly responded in the post-testing phase and provided the data.

### **Statistical Analysis**

Quantitative data obtained on QSQ-Adults, SS, and QSQ-Adolescents has been analyzed further on SPSS-25.0V. First, descriptive statistics of demographic characteristics were calculated. Subsequently, an assessment of the dependability of data and the statistics of adolescents' expertise in social skills, the quality of their socialization, and the many dimensions of their social skills were conducted, in addition to evaluating the overall health of both parents and adolescents. In addition, two-way and three-way mixed factorial ANCOVA were utilized to examine both the pre-and post-testing data results for both groups.

### **Ethical Considerations**

Ethical considerations were carefully examined while doing this research. Permission and consent from the study Ethics Board, the Institutional Review Board, the author of the scales, and significant authorities were obtained before performing the study. Every participant in the research received a consent form along with a summary of the goal of the present investigation. Only those

participants were selected for the study who were interested in taking part in the present investigation.

**Results**

**Table 1 & 2:** Mixed (2x2x2) Factorial ANCOVA for Pre-Post Assessments of

Variables	Adolescents										
	CG				EG				F(1,189)	P	η <sup>2</sup>
	Pre		Post		Pre		Post				
	M	SD	M	SD	M	SD	M	SD			
Social Initiation	0.50	0.73	0.56	0.67	0.46	0.74	1.77	0.72	1.10	.414	.011
Conflict	1.88	0.07	1.82	0.34	1.90	.04	1.14	0.15	0.25	.621	.020
Social Reciprocity	0.50	0.74	0.32	0.62	0.52	0.74	1.83	0.72	1.50	.321	.017
<b>Covariates</b>	-	-	-	-	-	-	-	-	-	-	-
Age	-	-	-	-	-	-	-	-	0.06	.955	.001
Gender	-	-	-	-	-	-	-	-	0.58	.715	.003
Education	-	-	-	-	-	-	-	-	0.43	.670	.002

Quality of Socialization (Social Initiation, Conflict, and Social Reciprocity) across EG and CG for Adolescents and Parents (N =180).

Note. M = mean, SD = Standard Deviation, η<sup>2</sup> = eta square

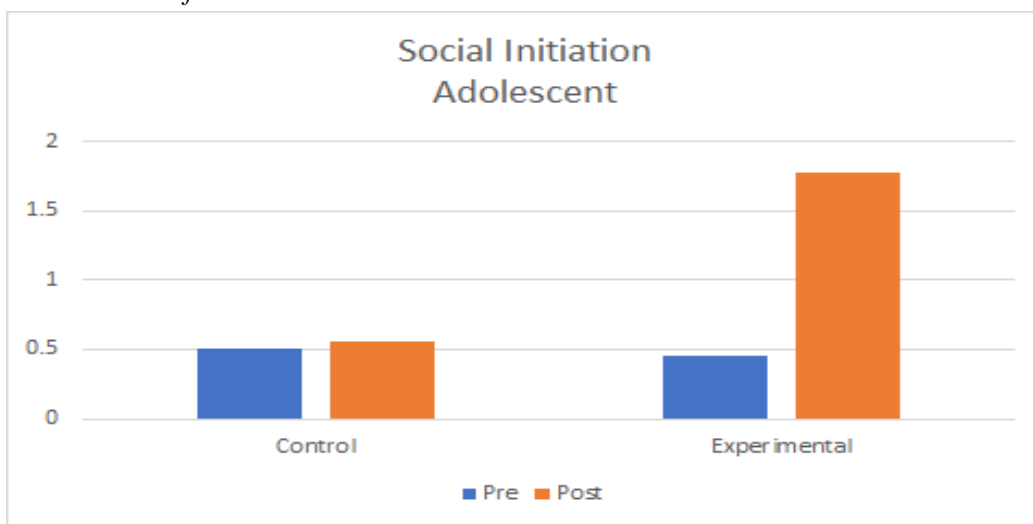
Variables	Parents										
	Control				Experimental				F(1,189)	p	η <sup>2</sup>
	Pre		Post		Pre		Post				
	M	SD	M	SD	M	SD	M	SD			
Social Initiation	0.42	0.73	0.60	0.78	0.46	0.77	1.52	0.77	1.10	.414	.011
Conflict	1.77	0.19	1.66	0.16	1.63	0.17	1.23	0.24	0.25	.621	.020
Social Reciprocity	0.36	0.66	0.68	0.71	0.40	0.61	1.46	0.71	1.50	.321	.017
<b>Covariates</b>	-	-	-	-	-	-	-	-	-	-	-
Age									0.06	.955	.001
Gender									0.58	.715	.003
Education									0.43	.670	.002

**Table 2**

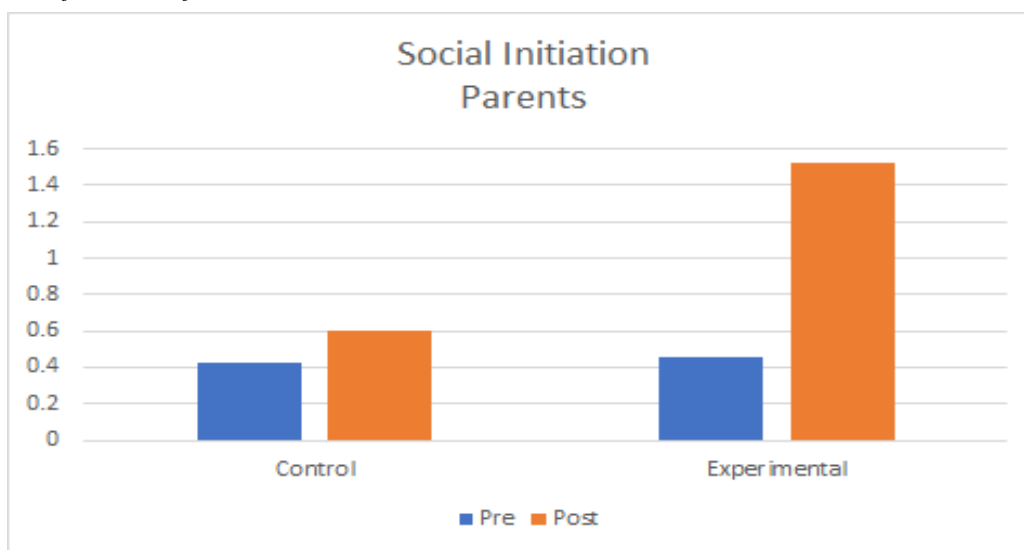
Note. M = mean, SD = Standard Deviation, η<sup>2</sup> = eta square

The results of three-way mixed factorial ANCOVA after controlling the effect for age, gender, and education showed that the significant *main effect* of assessments (pre and post) for social initiation was  $F(1, 189) = 2.38, p < .05$ . Which indicated that social initiation was improved after receiving the UCLA PEERS intervention? The interaction impact of Participants (adolescents and parents) and social initiation assessments (pre and post) was non-significant, indicating that both groups benefited from the intervention.  $F(1, 189) = 0.01, p > .05$ . Moreover, the interaction between Groups (EG and CG) and pre/post social initiation assessments was significant ( $F(1, 189) = 27.66, p < .001$ ). Post-assessment, intervention dramatically improved EG's social initiation. See Figures 1 and 2.

**Figure 1:** The adolescents with ASD had mean differences in their pre-post assessments of social initiation across EG and CG.



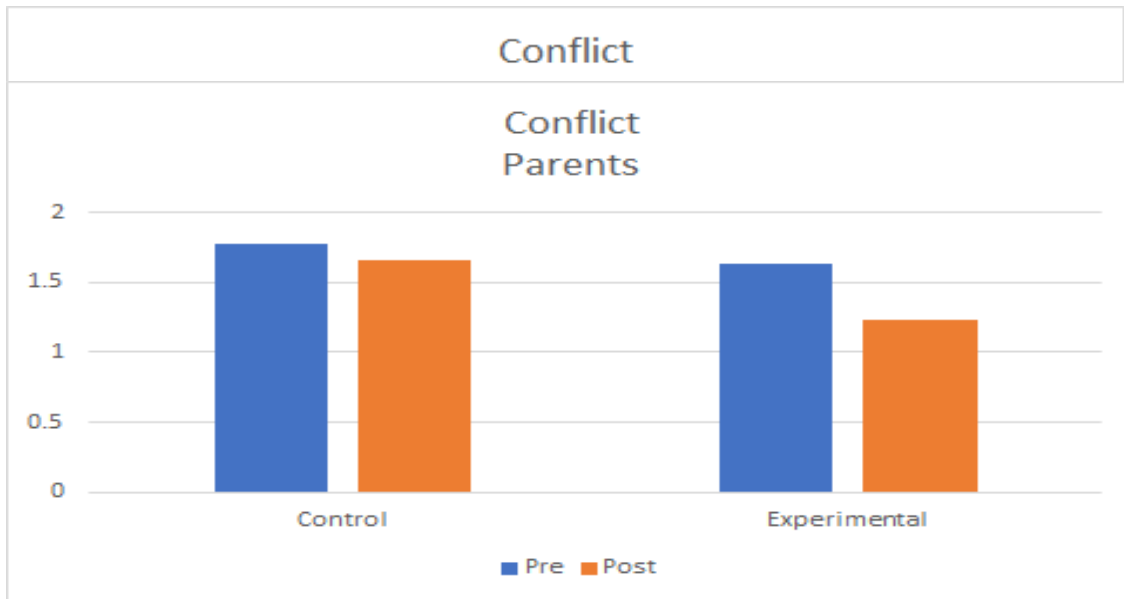
**Figure 2:** Mean variations in parents' EG and CG social initiating assessments before and after.





The study found no significant interaction between the Groups (EG & CG), Participants (adolescents and parents), and social initiation ( $F(1, 189) = 1.10, p > .05$ ). In the post-assessment for parents and adolescents, the intervention significantly raised social initiation for the EG. As a result, parents and teenagers benefit from the intervention.

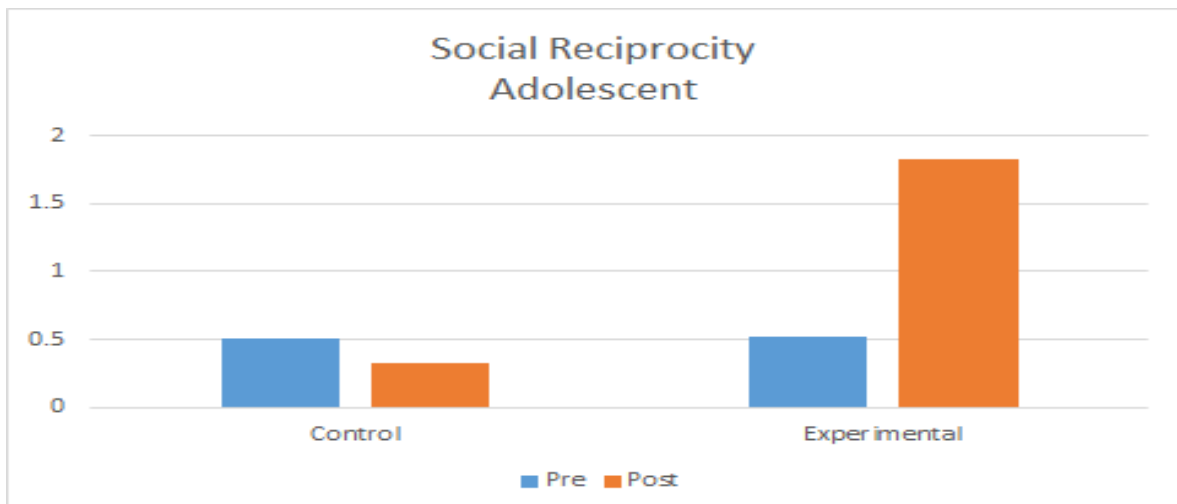
**Figure 3:** The adolescents with ASD had mean differences in their pre-post assessments of conflict across EG and CG.



**Figure 4:** Mean variations in the pre-post Conflict evaluations between the EG and CG of parents.

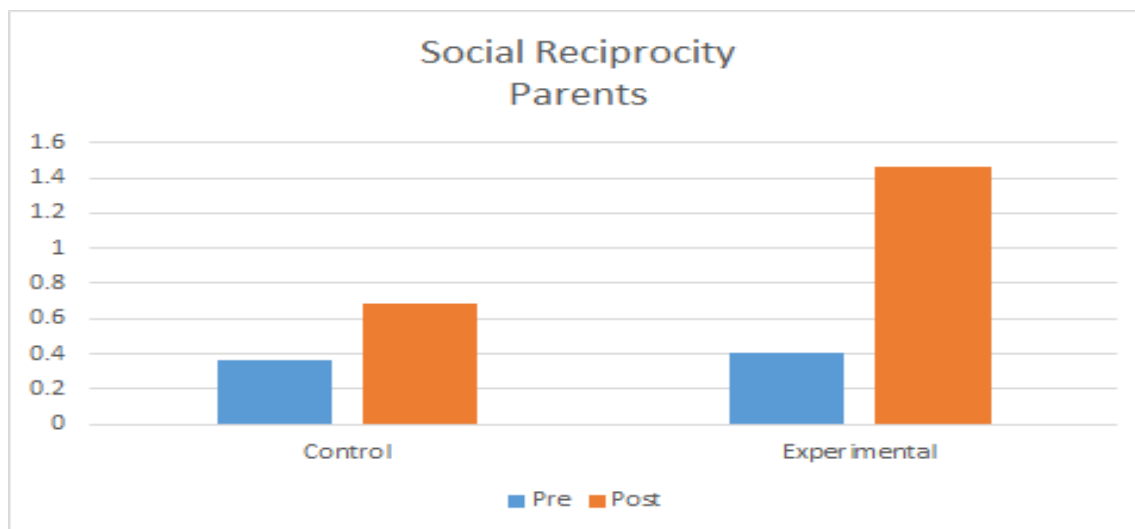
With  $F(1, 189) = 0.25, p > .05$ , the interaction effect of Participants (adolescents and parents), Groups (EG & CG), and Conflict was likewise non-significant. The intervention significantly decreased the EG's post-assessment conflict with parents and adolescents. The intervention is therefore effective for both parents and teenagers. Refer to Figures 5 and 6.

**Figure 5:** Adolescents with ASD's mean differences in pre- and post-social



*reciprocity assessments across EG and CG.*

**Figure 6:** *The mean difference between the parents' pre- and post-assessments of*



*social reciprocity in EG and CG*

Similarly non-significant were the interaction effects of the experimental and control groups, teenagers and their parents, and social reciprocity, with  $F(1, 189) = 1.50, p > .05$ . Post-assessment for adolescents and parents showed that the intervention considerably improved social reciprocity for the experimental group. Thus, the intervention works for adolescents and parents in EG post-assessments.

### **Discussions**

The study hypothesized that the adapted UCLA PEERS model would improve social initiation, conflict, and reciprocity in adolescents with ASD. This hypothesis was accepted when the EG showed a substantial improvement in the quality of socialization in post-testing compared to pre-testing. Three-way mixed factorial ANCOVA showed that pre- and post-assessments significantly influenced social initiation:  $F(1, 189) = 2.38, p < .05$ . This showed that the adapted UCLA PEERS intervention improved social initiation. The interaction impact of Participants (adolescents and parents) and social initiation assessments (pre and post) was non-significant, indicating that the intervention was equally successful for both groups with  $F(1, 189) = 0.01, p > .05$ .

Moreover, the interaction between Groups (EG and CG) and pre/post social initiation assessments was significant with  $F(1, 189) = 27.66, p < .001$ . The post-assessment showed that intervention increased EG participants' social

initiation. The interaction between Participants (adolescents and parents), Groups (EG and CG), and social initiation was non-significant [ $F(1, 189) = 1.10, p > .05$ ]. The intervention significantly increased social initiation among EG adolescents and parents, according to the post-assessment results. For this reason, intervention works well for parents and teenagers.

Pre-post assessments had a major impact on conflicts ( $F(1, 189) = 17.28, p = .001$ ). Following the tailored UCLA PEERS intervention, there was less conflict. The results indicate that the intervention was equally successful for both groups, as indicated by the non-significant interaction effect between the participants (parents and adolescents) and the conflict assessments (pre and post) ( $F(1, 189) = 0.07, p > .05$ ).  $F(1, 189) = 179.82, p = .001$  indicated a significant interaction between the Groups (EG and CG) and the conflict assessments (pre and post). When EG conflict was evaluated after the intervention, it was considerably lower than CG. The interaction effect between the groups (EG and CG), the adolescents and their parents, and the conflict was also not statistically significant [ $F(1, 189) = 0.25, p > .05$ ]. After the intervention, there was a significant decrease in EG conflict among parents and teenagers. For teenagers, the intervention is therefore successful.

The significant main effect of assessments (pre and post) for social reciprocity was  $F(1, 189) = 6.10, p = .05$ . UCLA PEERS promoted social reciprocity. The interaction effect of the participants (adolescents and parents) and reciprocity assessments (pre-post) was likewise non-significant, indicating that both groups benefited from the intervention [ $F(1, 189) = 0.22, p > .05$ ]. The interaction between Groups (EG and CG) and conflict assessments (pre and post) was significant ( $F(1, 189) = 107.81, p = .001$ ). Post-assessment showed that intervention considerably enhanced social reciprocity for the EG.

In short, the results of a three-way ( $2 \times 2 \times 2$ ) mixed factorial ANCOVA indicated that the intervention significantly improved social initiation and social reciprocity, while the intervention showed a significant reduction in conflict for the EG in post-assessment for both adolescents and parents. Evidence supports that the UCLA PEERS is potentially beneficial social skills training that enhances the overall social skills of adolescents with ASD, specifically the quality of socialization in terms of improved communication skills and increased get-togethers. Improved social reciprocity with peers and improved friendship along with get-togethers has also been reported after participation in UCLA PEERS (Laugeson, 2014).

Several research studies have demonstrated that social skills training such as UCLA PEERS is a potentially organized and practical intervention that directly involves life-changing agents, i.e., parents and teachers, to improve the overall

quality of socialization (Frankel et al., 2010; O'Connor et al., 2006; Laugeson et al., 2009; Wood et al., 2009; Solomon et al., 2004; Laugeson, & Frankel, 2010). The enhancements in entering social contact, maintaining social contact, exiting a conversation, and overall quality of socialization were evident considering the PEERS intervention's emphasis on play skills and sportsmanship. In Sessions 6, 7, and 8, for example, didactic teachings on initiating a conversation, identifying social cues, social reciprocity (two-way communication) to maintain a conversation, and ways to properly end a conversation were offered. The therapist often discussed what constitutes good sportsmanship and what makes a successful get-together during behavioral rehearsal tasks and homework reviews. Consequently, adolescents are emphasized and encouraged to use play rules and leisure skills during in-group and out-of-group practice for approximately half of the intervention.

Adolescents build confidence and the ability to employ these abilities by applying them to real-world circumstances during these practice sessions. Since PEERS is a group-based training program, during behavior rehearsal exercises, participants naturally and progressively start acting more cooperatively toward one another. Weekly homework assignments also require cooperation with peers who are not involved in the program and with other group members, such as during phone calls conducted within the group. The intricate and regulated behavioral rehearsal exercises give PEERS remarkable effectiveness.

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