# EXAMINING CAREGIVER-CHILD RELATIONSHIPS AND FAMILY FUNCTIONING IN EVIDENCE-BASED SOCIAL SKILLS TRAINING FOR YOUNG CHILDREN WITH AUTISM: THE UCLA PEERS® FOR PRESCHOOLERS PROGRAM

Reina S. Factor, Ph.D.
Postdoctoral Clinical Fellow

Tarjan Center at UCLA Lecture Series

October 19, 2020

# OUTLINE

- **Review of Literature**
  - **Social Impairments in ASD**
  - **Social Skills Interventions**
  - **Caregiver Involvement in Interventions**
  - **Family Functioning in ASD**
- **Current Study**
  - **Aims**
  - **Method**
  - **Analytic Plan**
  - **Results**
  - **Discussion**
  - **Limitations and Future Directions**
  - **Conclusion**

# REVIEW OF LITERATURE

# SOCIAL IMPAIRMENTS IN ASD

- **Social competence difficulties: core deficit for children with ASD** (American Psychiatric Association, 2013)

- **Decreased ability to make and maintain friendships** (Bellini, Peters, Benner, & Hopf, 2007)

- **Lack of initiating/maintaining social interactions, empathy, using and interpreting verbal/nonverbal communication, understanding others' thoughts, emotions** (Baron-Cohen & Wheelwright, 2004; Frith, 2004)

# SOCIAL IMPAIRMENTS IN ASD

- **Early signs of social reciprocity deficits**
  - **Lack of social smiling, eye contact, orienting, facial processing** (Farroni, Csibra, Simion, & Johnson, 2002; Messinger, Fogel, & Dickson, 2001; Mundy, 2016)
- **Less time interacting with peers, low-quality exchanges, remain farther apart physically, more time engaged in non-goal-directed activities** (Lord & Magill-Evans, 1995; Sigman & Ruskin, 1999)

# SOCIAL SKILLS INTERVENTIONS

- **Social communication often top treatment concerns** (Watkins, Kuhn, Ledbetter-Cho, Gevarter, & O'Reilly, 2017)

- **Gains minimal, not maintained beyond treatment** (Bellini et al., 2007)

- **Few manualized interventions currently available** (Lord et al., 2005)

# CAREGIVER INVOLVEMENT IN INTERVENTIONS

- **Shift from professional-driven model to more family-focused** (Dixon et al., 2004; Thompson et al., 1997)

- **Bidirectional effect of ASD on the family system, impacts child** (Karst & Van Hecke, 2012)

- **Caregiver and family outcomes involved in maintenance and generalization of child treatment gains** (Karst & Van Hecke, 2012)

- **Generalization beyond social skills group might occur by including caregivers** (DeRosier et al., 2011)

# FAMILY FUNCTIONING IN ASD

- **Family Systems Theory (FST): an individual cannot be examined in isolation** (Bowen, 1978)

- **Family conflict more predictive of ASD symptomatology than positive family or peer influences** (Kelly, Garnett, Attwood, & Peterson, 2008)

- **Gains made by the child with ASD completing an intervention must also be compared to effects on the family** (Lord & Bishop, 2010)

# FAMILY INVOLVEMENT IN INTERVENTIONS

- **Few evidence-based interventions explicitly address development of social skills in preschool-aged children** (DeRosier et al., 2011; Reichow & Volkmar, 2010)

- **None appear to actively integrate caregivers into treatment** (Reichow, Steiner, & Volkmar, 2012)

# PEERS FOR PRESCHOOLERS (P4P)

- PEERS® program: Program for the Education and Enrichment of Relational Skills (Laugeson & Frankel, 2010)



- Randomized controlled trial (RCT) indicated benefits from P4P
  - Increases in social skills
  - Reduction in ASD symptoms and problem behaviors

# MODEL OF INTERVENTION EVALUATION

- Two primary domains
  - 1) Caregiver and family outcomes
  - 2) Child outcomes

- (Karst & Van Hecke, 2012)

# THEREFORE…

- Given this information, exploring:

  - 1) P4P curriculum and examine social skills improvement in the child with ASD

  - 2) caregiver confidence and knowledge in interacting with their child

  - 3) the caregiver-child relationship and interaction style over the course of treatment

  - 4) family functioning in the context of treatment

# HYPOTHESES – SOCIAL SKILLS

- a) increase their caregiver-reported social skills and these improvements will be maintained after treatment and at follow-up

- b) Decrease ASD symptoms related to social functioning from entry/pre-treatment to post-treatment, maintained at follow-up

# HYPOTHESES – CAREGIVER EFFICACY AND BEHAVIOR

Caregivers will



- a) increase knowledge of social skills

- b) gain more self-efficacy in dealing with their children's social interactions and acting as a facilitator from entry/pre-treatment to exit/post-treatment, maintained at follow-up

- c) improve caregiver-child interactions in responsiveness, affect, achievement, and directiveness from entry/pre-treatment to exit/post-treatment that will be maintained at follow-up

- d) improve parenting styles overall, specifically in laxness, overreactivity, and verbosity, maintained after treatment

# HYPOTHESES – FAMILY FUNCTIONING

- a) Household chaos will improve from entry/pre-treatment to exit/post-treatment, maintained at follow-up

# METHOD

# METHOD: PARTICIPANTS (IN THIS SPECIFIC STUDY)

- **Demographics**
  - Fifteen children, 4 groups
  - 4-7 years ($M$ = 4.87, $SD$ = 1.25)
  - 11 boys, 4 girls
  - 66.7% Caucasian
  - Caregivers (27-42 years; $M$ = 36.13 years, $SD$ = 5.14)
  - All children diagnosed with ASD without intellectual impairment (IQ > 70)

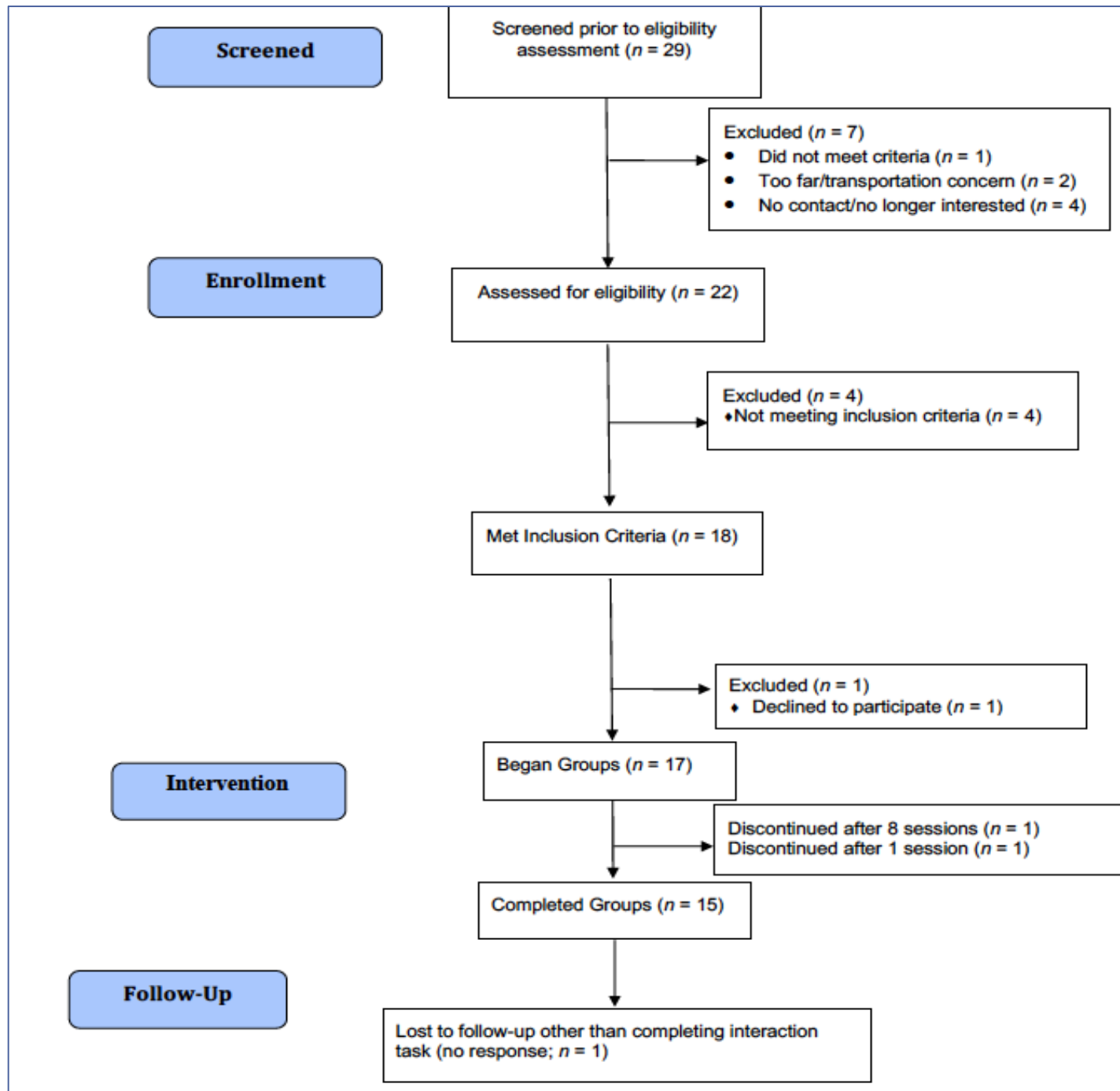- **Inclusion criteria**
  - ASD diagnosis, fluent in English,
  - Toilet trained
  - Able to tolerate group setting
- **Exclusion criteria**
  - Active medical problem, severe mental health problems
  - Physical aggression towards adults or children
  - Medication change over treatment

**Screened**

Screened prior to eligibility assessment (*n* = 29)

Excluded (*n* = 7)
- Did not meet criteria (*n* = 1)
- Too far/transportation concern (*n* = 2)
- No contact/no longer interested (*n* = 4)

**Enrollment**

Assessed for eligibility (*n* = 22)

Excluded (*n* = 4)
- Not meeting inclusion criteria (*n* = 4)

Met Inclusion Criteria (*n* = 18)

Excluded (*n* = 1)
- Declined to participate (*n* = 1)

**Intervention**

Began Groups (*n* = 17)

Discontinued after 8 sessions (*n* = 1)
Discontinued after 1 session (*n* = 1)

Completed Groups (*n* = 15)

**Follow-Up**

Lost to follow-up other than completing interaction task (no response; *n* = 1)

CONSORT DIAGRAM

# METHOD: PROCEDURES

- *Nonconcurrent multiple baseline design*
- Pre-intervention assessment
  - Eligible families invited to join the group
- 16-session P4P program
- Midpoint assessments (Session 8)
- Exit/Post-intervention assessments
- Follow-up assessments 4-6 weeks after treatment

# RANDOMIZATION

- 4 groups: 2-5 children in each group, randomized to baseline condition (e.g., 1.5, 2, and 3 week baseline period)

- During baseline period caregivers completed ratings of:
  - Social Skills (Social Skills Monitoring)
  - Parenting Styles (Parenting Scale)
  - Family Functioning (CHAOS Scale)

- Baseline conditions
  - Measures completed every half week
  - 1.5 week (Group 2; measures completed three time )
  - 2 week (Group 3; measures completed 4 times)
  - 2.5 week (Groups 1 and 4; measures completed 5 times)

# METHOD: PRIMARY OUTCOME MEASURES FOR HYPOTHESIS TESTING (BY HYPOTHESIS):

- **1) Social Skills**
  - **a) Social Skills Monitoring From**

  - **b) Social Responsiveness Scale, 2nd Edition** (Constantino & Gruber, 2012)

  - **Social Skills Improvement System** (Gresham & Elliot, 2008)

  - **The Quality of Play Questionnaire** (Frankel & Mintz 2008)
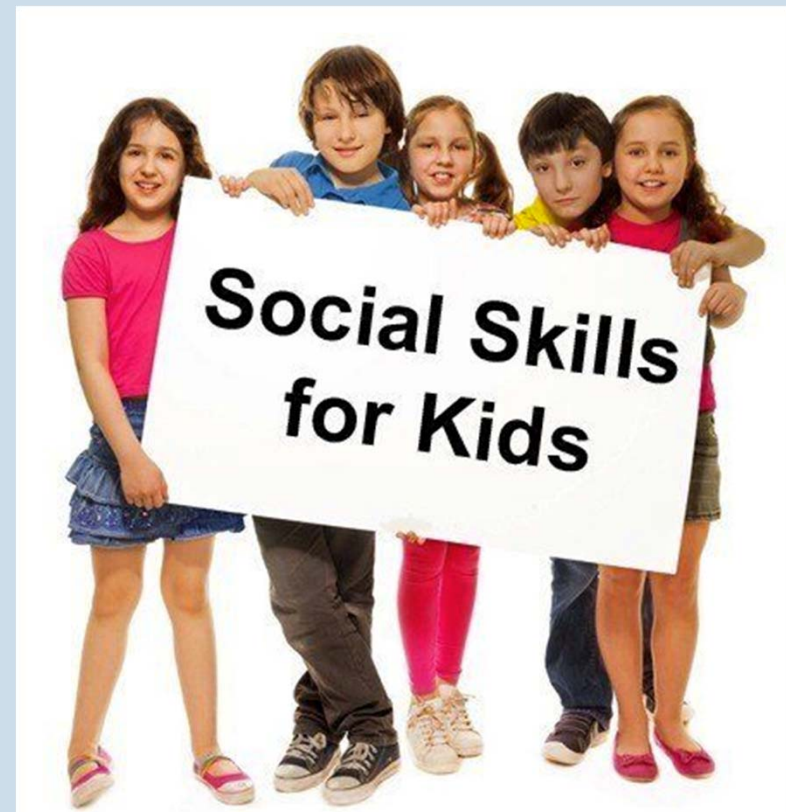
# METHOD: PRIMARY OUTCOME MEASURES FOR HYPOTHESIS TESTING (BY HYPOTHESIS):



- 2) Caregiver Efficacy and Behavior
  - a) Social Skills Monitoring
  - b) Parental Self-Efficacy in the Management of Asperger Syndrome (Sofronoff & Farbotko, 2002)
  - c) The Maternal Behavioral Rating Scale (Mahoney, Powell, & Finger, 1986)
  - d) Parenting Scale (Arnold, 1993)

- 3) Family Functioning
  - a) Confusion, Hubbub, and Order Scale (Matheny, Wachs, Ludwig, & Phillips, 1995)

- Fidelity of implementation

| Construct/Measure | Pre-Tx | Mid | Each Session | Post-Tx | Follow-up |
|---|---|---|---|---|---|
| **Sample Characterization** | | | | | |
| ADOS-2 | X | | | | |
| Demographics Form | X | | | | |
| KBIT-2 | X | | | | |
| VABS-III | X | | | | |
| **Social Skills** | | | | | |
| Social Skills Monitoring | X | X | X | X | X |
| SRS-2 | X | X | | X | X |
| SSIS | X | X | | X | X |
| QPQ | X | X | | X | X |
| **Caregiver Efficacy and Behavior** | | | | | |
| PSEMAS | X | X | | X | X |
| MBRS | X | X | | X | X |
| PS | X | X | X | X | X |
| **Family Functioning** | | | | | |
| CHAOS | X | X | X | X | X |
| **Treatment Quality** | | | | | |
| Fidelity Rating Form | | | X | | |

**TIMELINE OF MEASURES**

# P4P INTERVENTION

- **16 sessions, 2 per week (i.e., 2 sessions for week)**

- **GOAL:** Teach fundamental play and social skills in caregiver-assisted social skills group

- Separate caregiver and child sessions (60 minutes), joint portion (30 minutes)

- Caregivers practice coaching child

- Homework assignments

# P4P SESSION SCHEDULE

- Session 1: Listening to and following directions
- Session 2: Meeting and Greeting Friends
- Session 3: Sharing and Giving a Turn
- Session 4: Asking for a Turn
- Session 5: Keeping Cool
- Session 6: Being a good sport
- Session 7: Show and Tell
- Session 8: Don't Be Bossy
- Session 9: Asking a Friend to Play
- Session 10: Joining a Game
- Session 11: Asking to Play

Something Different
- Session 12: Asking & Giving Help
- Session 13: Stay in your Own Space
- Session 14: Using an Inside Voice
- Session 15: Review 1
- Session 16: Review 2 and Graduation

# ANALYTIC PLAN

Nonparametric Friedman tests, post-hoc Wilcoxon tests for pre–post comparison and follow-up data

Reliable change index (RCI)

Simulation Modeling Analysis (SMA; Borckardt et al., 2008)

Changes in the level of symptoms and the slope of symptom change, significance of the effect using bootstrapping methods

- Multivariate process change of temporal relationship

# RESULTS

# FRIEDMAN TESTS: SOCIAL SKILLS

| Measure | Friedman Test ($x^2$) |
|---|---|
| Social Skills | |
| SSM | 13.603* |
| SRS-2- total | 3.62 |
| Social Awareness | 5.96 |
| Social Communication | 7.77* |
| Social Motivation | 7.026 |
| Social Cognition | 4.62 |
| SCI | 8.39* |
| RRB | .792 |
| SSIS – Social Skills | 8.31* |
| QPQ | 3.237 |

| SSM - Social Skills Domain | SRS-2 | SSIS – Social Skills Domain | QPQ – Conflict scale | WILCOXON SIGNED RANK TEST: SOCIAL SKILLS |
|---|---|---|---|---|
| • Entry/pre-treatment to exit ($Z = -2.37$, $p = .018$, $r = .89$) <br><br> • Midpoint to exit/post-treatment ($Z = -2.38$, $p = .02$, $r = .89$) <br><br> • Midpoint to follow-up ($Z = -2.05$, $p = .040$, $r = .59$) | • SCI: Entry/pre-treatment and midpoint ($Z = -2.076$, $p = .038$, $r = .56$; entry/pre-treatment to follow up ($Z = -2.59$, $p = .010$, $r = .69$) <br><br> • Total SRS-2 score: entry/pre-treatment and follow-up ($Z = -2.043$, $p = .041$, $r = .55$) <br><br> • Social Cognition: entry/pre-treatment and midpoint ($Z = -1.99$, $p = .046$, $r = .53$); entry/pre-treatment and follow-up ($Z = -2.59$, $p = .010$, $r = .69$) <br><br> • Social Comm: entry/pre-treatment and follow-up ($Z = -2.073$, $p = .038$, $r = .55$) <br><br> • Social Motivation: entry/pre-treatment and midpoint ($Z = -1.95$, $p = .051$, r = .52) and entry/pre-treatment and follow-up ($Z = -2.613$, $p = .009$, r = .70) | • Entry/pre-treatment and midpoint ($Z = -2.41$, $p = .016$, $r = .90$) <br><br> • Entry/pre-treatment to follow-up ($Z = -2.51$, $p = .012$, $r = .84$) <br><br> • Midpoint to exit/post-treatment ($Z = -2.80$, $p = .005$, $r = .94$) <br><br> • Exit/post-treatment to follow-up ($Z = -2.56$, $p = .011$, $r = .85$) | • Midpoint to follow-up ($Z = -2.27$, $p = .023$, $r = .17$) | |

# FRIEDMAN TESTS:
# CAREGIVER EFFICACY AND BEHAVIOR

| Measure | Friedman Test ($x^2$) |
|---|---|
| Caregiver Efficacy and Behavior | |
| SSM | |
|    Confidence | 6.00 |
|    Stress | 2.053 |
| PSEMAS | 7.58 |
| MBRS | |
|    RCO | 1.77 |
|    AA | 3.33 |
|    AO | 7.97* |
|    DR | 2.305 |
| PS -total | 4.54 |
|    Verbosity | 1.70 |
|    Laxness | 4.12 |
|    Overreactivity | 11.8* |

| SSM – Confidence and Stress | PSEMAS - Total Self-efficacy | MBRS | PS Scale | WILCOXON SIGNED RANK TEST: CAREGIVER EFFICACY AND BEHAVIOR |
|---|---|---|---|---|
| • No significant changes in stress or confidence were indicated, though caregiver stress did slightly increase | • Entry/pre-treatment and midpoint ($Z = -2.48$, $p = .013$, $r = .029$)<br><br>• Entry/pre-treatment to follow-up ($Z = -2.23$, $p = .026$, $r = .23$) | • AO from entry/pre-treatment to midpoint ($Z = -2.00$, $p = .046$, $r = .52$); entry/pre-treatment to follow-up ($Z = -2.39$, $p = .017$, $r = .62$)<br><br>• AA from midpoint to exit/post-treatment ($Z = -2.501$, $p = .012$, $r = .67$) | • PS total score: from entry/pre-treatment to midpoint ($Z = -2.25$, $p = .024$, $r = .75$); from entry/pre-treatment to follow-up ($Z = -2.045$, $p = .041$, $r = .62$)<br><br>• Laxness: entry/pre-treatment to midpoint ($Z = -2.016$, $p = .044$, $r = .67$)<br><br>• Overreactivity: entry/pre-treatment to midpoint ($Z = -2.20$, $p = .028$, $r = .73$); entry/pre-treatment to exit/post-treatment ($Z = -2.39$, $p = .017$, $r = .84$) | |

# FRIEDMAN TESTS AND WILCOXON TESTS: FAMILY FUNCTIONING

| Measure | Friedman Test ($x^2$) |
|---|---|
| Family Functioning | |
| CHAOS | 2.02 |

No significant differences on Wilcoxon tests

# RCIS: INDIVIDUAL OUTCOMES FOR SIGNIFICANT IMPROVEMENT AND RECOVERY: SOCIAL SKILLS

**SRS-2**

- 7.14% individuals improved from entry/pre-treatment to follow-up on total (1 /14 children; GAC15)

- 20% improved on SCI from entry/pre-treatment and exit/post-treatment (2/10 children; GAC15, GAC19)

- 21.43% from entry/pre-treatment to follow-up (3/14 children; GAC15, GAC19, VT3)

**SSIS – Social Skills**

- 50% significantly improved from entry/pre-treatment to exit/post-treatment (5/10 children: GAC1, GAC5, GAC11, GAC19, VT3)

- 50% at follow-up (7/14 children: GAC1, GAC5, GAC11, GAC14, GAC15, GAC19, VT3)

**QPQ**

- 71.42% significantly improved from entry/pre-treatment to exit/post-treatment of children (5/7 children; GAC5, GAC11, VT3, VT4, VT6)

- 80% significantly improved from entry/pre-treatment to follow-up (8/10 children; GAC5, GAC11, GAC14, GAC15, GAC18, VT3, VT4, VT6)

# RCIS: INDIVIDUAL OUTCOMES FOR SIGNIFICANT IMPROVEMENT AND RECOVERY: CAREGIVER CONFIDENCE AND BEHAVIOR

## PSEMAS

- 30% of caregivers indicated that they significantly improved from entry/pre-treatment to exit/post-treatment (3/10; GAC11, GAC19, VT4)

- 50% did at follow-up (7/14; GAC5, GAC11, GAC15, GAC18, GAC19, VT4, VT6)

## MBRS

- 21.42% improved on the RCO scale entry/pre-treatment to exit (3/14: GAC5, VT6, VT8 ) and 13.33% from entry/pre-treatment to follow-up (2 /15: GAC5, GAC7)

- AA scale, 7.14% improved from entry/pre-treatment to exit/post-treatment (1 /14; GAC18) and 6.67% from entry/pre-treatment to follow-up (1/15; GAC18)

- AO scale, 21.43% of caregivers from entry/pre-treatment to exit/post-treatment (3/14; GAC7, GAC18, GAC20), 40% from entry/pre-treatment to follow-up (6/15; GAC1, GAC7, GAC18, GAC19, GAC20, VT6 )

- DR scale, 35.71% entry/pre-treatment to exit/post-treatment (5/14; GAC18, VT2, VT3, VT6, VT8) and 33.33% entry/pre-treatment to follow-up (5 /15; GAC18, VT2, VT3, VT6, VT8 )

## PS

- 22.22% of caregivers improved from entry/pre-treatment to exit/post-treatment on the total scale (2 /9; GAC19, VT3)

- 9.10% significantly improved from entry/pre-treatment to follow-up (1 /11; VT4)

# RCIS: INDIVIDUAL OUTCOMES FOR SIGNIFICANT IMPROVEMENT AND RECOVERY: FAMILY FUNCTIONING

**CHAOS**

- 11.11% of caregivers indicated that the level of family functioning significantly improved from entry/pre-treatment to exit/post-treatment (1/9: GAC11)

- 8.18% of caregivers indicated that the level of family functioning significantly improved from entry/pre-treatment to follow-up (2/11: GAC11, GAC14)

# MULTIVARIATE PROCESS ANALYSES

- **Slope 1:** an increasing baseline and decreasing treatment

- **Slope 2:** a flat baseline and increasing treatment

- **Slope 3:** an increasing baseline and flat treatment

- **Slope 4:** increasing from baseline throughout treatment

- **Slope 5:** increasing during baseline, return to pre-treatment level at the initiation of treatment, then increasing throughout treatment
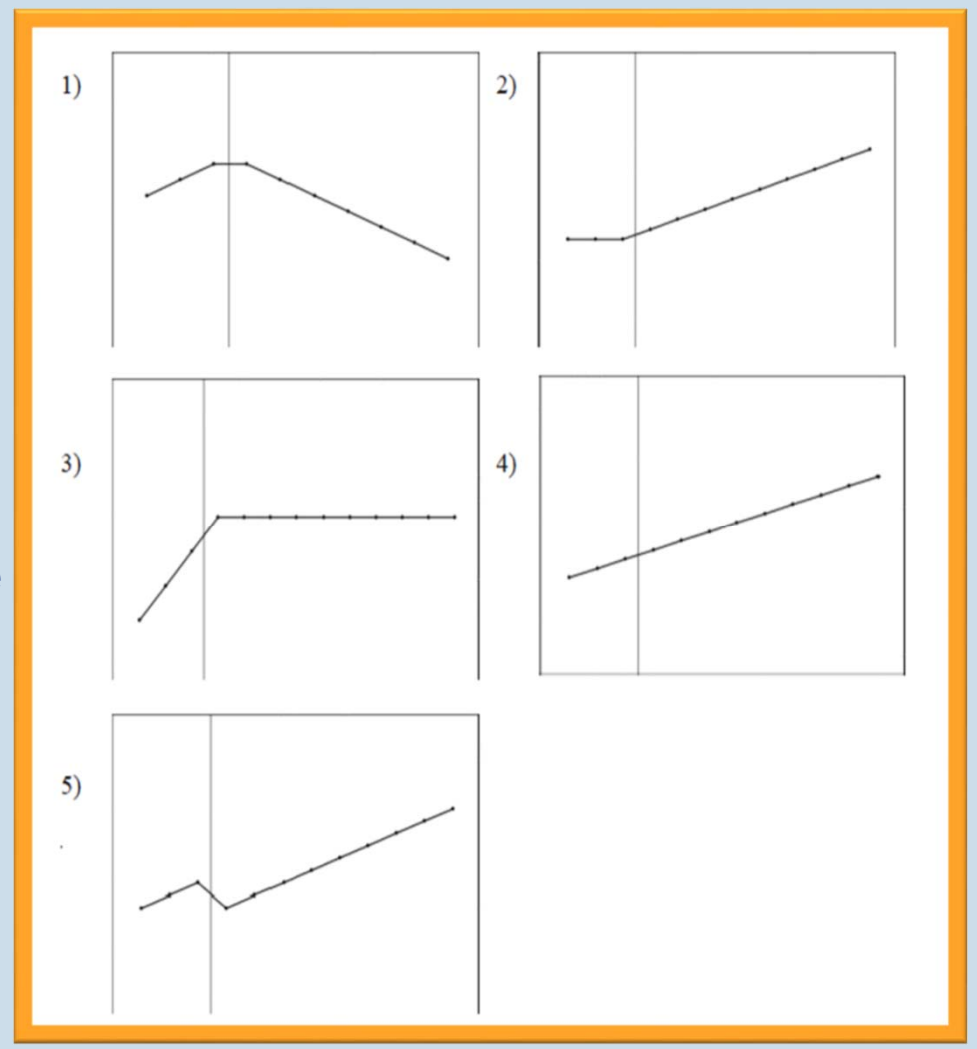
# Mean Level Changes between Baseline and Treatment for SSM, PS, and CHAOS scores

| Group | SSM Social Skills | PS total | CHAOS total |
|-------|-------------------|----------|-------------|
| Group 1 | .317 | .065 | -.247 |
| Group 2 | .375 | .335 | -.413 |
| Group 3 | .523* | -.076 | -.103 |
| Group 4 | .526 | -.597* | -.363 |

*p<.05
** p<.01
*Note.* SSM = Social Skills Monitoring Social Skills Questionnaire; PS = Parenting Scale Total Score;
CHAOS = Confusion, Hubbub, and Order Scale Total Score

# Multivariate Process Change Analysis for SMA for SSM, PS, and CHAOS scores

| Group | SSM Social Skills, PS Total Score | SSM Social Skills, CHAOS Total Score | PS Total Score, SSM Social Skills | PS Total Score, CHAOS Total Score | CHAOS Total Score, SSM Social Skills | CHAOS Total Score, PS Total Score |
|---|---|---|---|---|---|---|
| Group 1 | .55 (-3)** | .55 (-3)** | .57 (-3)** | .57 (-3)** | -.47 (-3)* | -.47 (-3)* |
|  | .58 (-2)** | .58 (-2)** | .57 (-2)** | .57 (-2)** | -.52 (-2)* | -.52 (-2)* |
|  |  |  |  |  | -.47 (-1)* | -.47 (-1)* |
|  |  |  |  |  |  |  |
| Group 2 | .40 (-3)* | .40 (-3)* | .26 (-3) | -.26 (-3) | -.41 (0)* | -.41 (0)* |
|  | .55 (-2)** | .55 (-2)** |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Group 3 | .37 (-3)* | .37 (-3)* | .17 (-3) | .17 (-3) | -.23 (2) | -.23 (2) |
|  | .44 (-2)* | .44 (-2)** |  |  |  |  |
|  | .49 (-1)** | .49 (-1)** |  |  |  |  |
|  | .52 (0)** | .52 (0)** |  |  |  |  |
|  |  | .36 (1)* |  |  |  |  |
| Group 4 | -.37 (-2) | -.37 (-2) | -.37 (-2)* | -.37 (-2) | -.37 (-2) | -.37 (-2)* |

*\* p<.05 with Bonferroni correction*
*\*\* p<.01 with Bonferroni correction, number in parentheses indicates significant lag*

# DISCUSSION, FUTURE DIRECTIONS, CONCLUSIONS

# DISCUSSION

Suggests working on social skills is key for early intervention

Clarifies how caregiver involvement in interventions is critical

Results suggest improvements in social skills, caregiver-child relationship, and caregiver confidence are improved in a 16 session social skills treatment and maintained at a 4-6 week follow-up

Results did not indicate significant differences in family functioning

Use of both an observational coding system as well as caregiver self-report adds to the robust findings of this work

# DISCUSSION: FEASIBILITY

- Supports that this intervention is feasible to administer across sites, as well as feasibility of employing training beforehand to prepare group leaders

- Promising results for continuing to offer P4P to this age group, which is in need of social skills services (DeRosier et al., 2011; Reichow & Volkmar, 2010)

# DISCUSSION: SOCIAL SKILLS

- Many gains maintained at 4-6 week follow-up
- SRS-2 SCI score significantly improved over treatment, maintained at follow-up
- Other SRS-2 domains improved:
    - Social Cognition, Social Communication, and Social Motivation
- Similar gains on the SSIS, though not on QPQ
- Individuals significantly improved overall, based on RCI scores
- All groups demonstrated increased slope over course of treatment (slopes 2 & 4)
- SMA results could suggest including booster sessions to maintain gains after completion of formal treatment

# DISCUSSION: CAREGIVER EFFICACY AND BEHAVIOR

- Caregiver stress did not decrease, and confidence did not increase on SSM

- Parental Self-efficacy (PSE) did increase from entry/pre-treatment to follow-up on the PSEMAS

  - Captures overall confidence; belief in ability to parent their child (Karst & Van Hecke, 2012)

  - PSE may generalize to different domains of daily functioning

  - In context of intervention, increase in PSE is critical, as caregivers play an essential role in child improvement (bidirectional relationship)

- SMA indicated mean changes in one group (Group 4)

- Caregiver-coaching component in each P4P session might have increased PSE

# DISCUSSION: CAREGIVER EFFICACY AND BEHAVIOR

- PS
  - 10% of caregivers recovered from entry/pre-treatment to exit/post-treatment

- MBRS (observational measure)
  - AO and AA scales indicated caregiver improvement from entry/pre-treatment to follow-up

    - Some significantly improved on these scales (RCI scores), one caregiver recovered on the AO scale from entry/pre-treatment to exit/post-treatment

- Therefore caregivers are a critical component of intervention, also experience positive changes in their own PSE and parenting styles
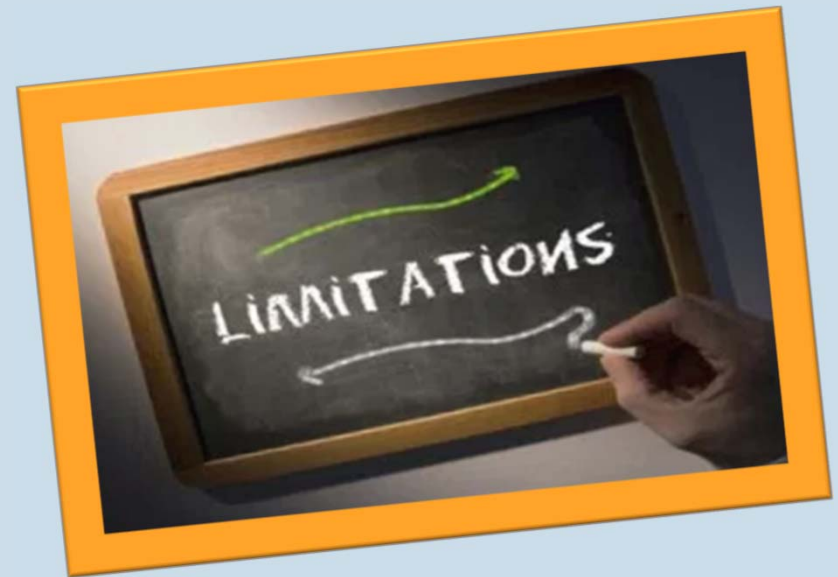
# DISCUSSION: FAMILY FUNCTIONING

- Results did not indicate change, largely stable throughout all timepoints

- Two caregivers indicated family chaos significantly improved (RCI scores)

- Might suggest other family members may need to be involved in intervention or more measures should be employed

- Only one father was the target caregiver

- Did not increase family stress, suggests caregiver training may require less time and strain, allowing them to still focus on other children or spouse

# LIMITATIONS

- Small sample sizes: difficult to detect interaction effects as well as to apply various statistical analyses

- Homogeneous sample (e.g., race, gender)

- Family members who attended each session not recorded

- Mostly caregiver-report measures utilized
  - Observational measure was employed, but most reports relied on caregiver-report

# FUTURE DIRECTIONS

Social Skills

Caregiver efficacy and Behavior

Family Functioning

The Future
NEXT EXIT

- Suggest a connection between all three variables, and especially between social skills and caregiver style of parenting as well as social skills and family functioning

- More research needed, as this work is a first step in employing social skills for this age group

- Continuing research focusing on caregivers and the family, in addition to specific child outcomes

# FUTURE DIRECTIONS

- Looking at the family as whole, more family, specifically sibling involvement

- Help identify potential barriers to family involvement in interventions (Karst & Van Hecke, 2012)

- Examining mechanistic role of caregiver involvement through mediation analyses

- Caregiver traits, including BAP (Broad Autism Phenotype) or stress, important step in determining how to tailor interventions

- More longitudinal work provide information regarding the impact of teaching social skills early

# FUTURE DIRECTIONS

- **Telehealth**
    - **Success indicated in adolescent and young adult PEERS groups**

    - **Working to develop version of P4P via telehealth with more focus on parent and puppet show videos**

# CONCLUSIONS

- Demonstrates feasibility of implementing and adapting PEERS® for younger children

- Examination and gains of both caregiver and child outcomes

- Directly addresses core features and difficulties of young children with ASD and lack of social skills programs geared towards this age group

- Future work will allow further understanding specific effectiveness of caregiver-assisted social skills on treatment implementation, child behaviors, and family functioning

# THANK YOU!