

Improving neurocognitive and social cognitive skills in adolescents with VCFS: Preliminary feasibility and efficacy data

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Neurocognitive and Social Cognitive Impairments

- Working memory
- Attention
- Processing speed

- Emotion recognition
 - Facial and auditory
- Taking perspective of others' feeling
- Managing own's own emotion
- Difficulties in social relationships

Neurocognitive and Social Cognitive Program: Two-pronged intervention

- 12-week computerized cognitive remediation program (CCRP)
 - Designed using exercises developed for the BrainWorks™ program by Posit Science (San Francisco, CA)
 - Adapted from a program shown to improve memory and attention
 - Completed at home on an individual basis
- 26-session social cognitive training (SCT) program
 - Based on cognitive enhancement therapy (CET), which has demonstrated efficacy in adults with schizophrenia
 - CET manual adapted for adolescents with 22q11DS (6 months)
 - Conducted in a small group setting

Enrollment to date

- Plan=18 children with 22q11DS in control and intervention groups each
- Ages 12-17 years, no psychotic illnesses
 - 3 drop-outs from first round of CCRP
 - 2 drop-outs from first round of SCT

	CCRP	SCT
Intervention	17	17
Control	16	15

No demographic differences between groups. No significant differences in neurocognition or social cognition between groups

CCRP feasibility

- All used CCRP without difficulty and without parental help.
- Completing all exercises took 29 hours on average.
- Factors identified in lack of adherence (n=3)
 - Lack of computer access
 - Lack of motivation on the part of the child or her parents
 - Competing demands of school

CCRP satisfaction

- Parents: Very or somewhat satisfied= 71% of parents
- Willing to repeat program: 82% of parents
- Frustrated with program: 59% of participants
 - Typically due to the program "freezing," a concern resolved by Posit Science before the intervention ended
- Upset at having to use the program: 12% of children
- Excited when it was time to use the program: 41% of children

CCRP preliminary results

Domain/Task	Between-groups effect size
Attention Domain	
CPT Hits	.29
CBCL Attention	-.37
Memory Domain	
CVLT Total	-.30
CVLT Short-Delay Free	.97
CVLT Long Delay Cued	-.26
Executive Function Domain	
Mazes Passed	.61
Mazes Credits	.36
Digits Backwards	.09
Spatial Span Backwards	.11
Stroop Time 1	-.76
Stroop Time 2	-.41
Cognitive Composite	
Composite	.79

- Significant improvement in Executive Function, Memory (Medium to large effect sizes)

- Overall cognitive index change significant (Large effect size), likely due to aggregate effect of improvements across all domains.

Harrell W et al Research in Developmental Disabilities, 2013 (in press)

SCT sessions

- Structured format – 60 minutes once a week
- Three to four participants
- One coach with one assistant
 - One group member asks others to present their homework.
 - Leader introduces new concepts.
 - Group members practice those concepts by discussing scenarios, role-playing, or conducting an exercise.
- Leader assigns new homework.
- Parents are informed each week about topics covered and homework assignment.

An SCT session: Nonverbal Cues

- Review homework
- Learning
 - Body language
 - Faces
- Exercises
 - Role-playing emotions
 - Identifying emotions in photos



- Homework: Look closely at the pictures. What emotion is shown? What clues helped you decide?

SCT feasibility

- 3 sites
- Longest drive for parents: 36 miles one-way
- 11 of 12 first-round participants attended more than half of the 26 lessons
- 9 attended at least 70% of the lessons
- Reason for drop-out: only girl in group with four boys
- Reasons for absences: family out of town, participant ill, transportation difficulty, participant's sports commitments

SCT satisfaction

- Quality of small group sessions excellent or good: 100% of parents
- Child learned new skills: 96% of parents
- Would come back to program: 96% of parents
- Liked going to group sessions very much or somewhat: 82% of children
- Felt learned something during group sessions: 82% of children
- Would keep coming to sessions given a choice: 59% of children

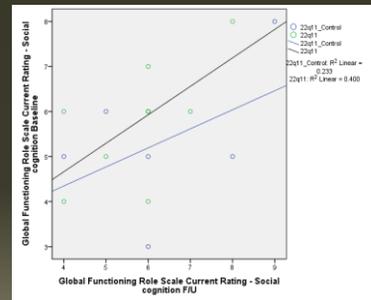
Parents' comments about the small group sessions*

- "I think the nice thing about the group...was it was a safe place."
- "[My son] has good nights and bad nights...every night when we left the group was a good night. I didn't have to worry about people saying you're ugly, you'll never have a girlfriend, you're this, you're that, which is what he gets all the time at school."
- "[My daughter] was very disappointed we were late—she said, 'I'm missing it! She really, really enjoys it. This is a time when she can talk to people who know what she's going through, and she doesn't think she'll be ostracized or criticized...It's been really wonderful.'"
- "I certainly see improvements with [my daughter] in terms of conversation... [She] approaches this little girl on the cheerleading team and says, Hi, and...the next week she tried again with another kid. She'd not really done that before."
- "My son will speak up when he wouldn't."
- "[My daughter] is blossoming."
(*from focus group with parents)

Written feedback from parents following SCT

- Could name a specific change observed in child: 75%
 - "[My daughter] is doing better with having more of a two way conversation...having more interest in what the other person has to talk about in particular. She also stood up for her sister when something unkind had been posted on someone's Facebook...That was very positive.
 - "[My daughter] is more talkative around other people...She has realized that the more she talks to kids in class, the more they talk and interact with her."
 - "I believe [my son] is better at communication! His attitude and thoughts about himself are MUCH better."
 - "[My daughter] seems to have more of a toolbox for interactions with peers now...she can more easily join a group of kids already in progress now appropriately."
 - "[My daughter] became more social."
- When asked what they liked about the groups, mentioned their children meeting others with the same condition or similar struggles: 50%

Preliminary Results: Social Cognition



Conclusions

- Two-pronged intervention seems feasible.
- Results of improvements in cognition are encouraging.
- Parents reported that social cognition training increased their children's willingness to initiate or skill in participating in conversations. They also praised the group's function as a safe space.
- Larger sample sizes would aid in assessing efficacy.

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