

Introduction

Autism is a complex disorder that despite years of research is not well understood. Most interventions have been developed to address perceived developmental, sensory, and behavioral deficits, and are rarely based on the bio-neurological underpinnings of autism or other comorbid conditions. Further, those on the autism spectrum are rarely included in designing or evaluating approaches to autism interventions; thus, those who would most benefit are excluded from guiding its direction. A better understanding of the neurological differences in autism might result in more effective coordination between disparate behavioral, developmental, educational, therapeutic, medical, and family-based approaches. **Neuro-Strength-Based Support for Autism (NSBSA)** attempts to translate neuroscience research into terms that autistics and their support network can understand. Rather than a new approach to intervention, the NSBSA is a unifying framework to understanding autism that all therapists, educators, clinicians, and parents can use to help improve the functional abilities and desires of the autistic individuals they support. It was developed by an Autistic Occupational Therapist based on her professional and lived experience.

Objectives

- 1) Feasibility and acceptability of the NSBSA training program among service providers working with autistic clients.
- 2) Pre- and post-training changes in service providers' satisfaction with their intervention goals for autistic clients.
- 3) Pre- and post-training changes in service providers' goal writing in terms of a focus on remediating deficits to achieve normal milestones to writing goals that use autistic individual's strengths and provide the necessary supports to improve the functional abilities desired by the autistic individual.

Participants

Table 1. Demographics and Feasibility

	Mean	SD	Range
Age	36.13	9.43	27-58
Experience (years)	9.34	6.99	2-23
Female/Male	16/0		
School/Medical	5/11		
Number of Modules	7.29	1.27	5-8
Number of Q&A	7.07	1.21	4-8

- **Pre-Training Evaluations:** Each participant (i.e. autism practitioner; **Table 1**) completed a Pre-Training Goal Satisfaction survey and a Pre-Training Goal Writing assessment.
- **Training:** Participants received eight asynchronous training modules (**Table 2**) then met one time per week virtually with the researchers for questions and discussion.
- **Post-Training Evaluations:** Each participant completed a Post-Training Goal Satisfaction survey, Post-Training Goal Writing assessment, and Course Satisfaction Survey.
- **Analyses:** Paired t-tests were used to evaluate change in Goal Satisfaction (**Fig. 1**) and Goal Writing (**Fig. 2**) before and after training, with alpha set at 0.05. Course Satisfaction questions means were qualitatively interpreted based on the wording of the Likert-scale options for each question (**Table 3**).

Table 3. Results of Course Satisfaction

Questions	Mean	SD	Interpretation
(1) Were the Modules helpful to you in understanding your client's needs and behaviors?	1.86	0.36	Yes
(2) Were the training modules easy to follow and the contents clearly expressed?	1.64	0.63	Between somewhat and yes
(3) Were you able to apply what you learned in each module to your client (i.e. the "homework")?	1.46	0.52	Between somewhat and yes
(4) Were the "Support Tools" provided in the modules helpful in recalling the information learned?	1.54	0.52	Between somewhat and yes
(5) Did the training modules seem relevant to the client you selected to focus on as part of this training?	1.71	0.47	Between somewhat and yes
(6) Was the training useful in helping you to change or add to the goals you had written for this client?	2	0	100% yes
(7) Was the training useful in helping you to make changes in any of the strategies or accommodations that you use with this client?	1	0	100% yes
(8) How confident do you feel about using this approach with other autistic clients?	1.64	0.50	Between somewhat and yes
(9) How has participating in this training impacted your perspective on working with autistic clients?	0.93	0.27	Helped
(11) How would you rate your overall satisfaction with the quality of the Training videos (i.e., pleased)?	4.57	0.51	Very much enjoyed it
(12) To what degree do you agree with this statement, "The instruction in the NSBSA Training is adequate for beginners."	3	1.36	Agree
(13) I thought that the two-hour length of the NSBSA Training sessions were	0.29	0.47	Too long
(14) I thought that the eight-week length of the NSBSA Training was	0.93	0.73	Just right
(15) How helpful do you feel that the practices you learned in the NSBSA Training have been in identifying your client's strengths, potential strengths, sources of motivation, and potential limitations?	1.79	0.43	Very helpful
(16) How helpful do you feel that the NSBSA Training has been in helping you identify needed accommodations, assistive devices, and prompts to help your client succeed despite potential limitations?	1.64	0.50	Between helpful and very helpful
(17) To what degree do you agree with this statement, "The NSBSA Training helped me create better goals for my autistic client."	1.64	0.50	Between agree and strongly agree
(18) Did you feel that the information provided in the NSBSA Training was paced well enough to avoid having you feel overwhelmed or confused?	1	0.55	Maybe
(19) Would you recommend the NSBSA Training for other therapists?	1	0	100% recommend
(20) How likely are you to continue using the practices you learned in the NSBSA Training in the future?	1.93	0.27	Extremely likely
(21) How would you rate the clarity of the directions given to complete the assignments?	0.86	0.36	Clear

Procedures

Table 2. Module Topics

1. Introduction to NSBS for Autism	5. Autism Neuroscience Research on Processing and Recall of Input
2. Interpreting and Supporting Autistic Behaviors	6. Autism Neuroscience Research on Body and Emotional Self-Awareness
3. Sources of Autistic Motivation	7. Developing Goals that Target Desired Function
4. Autism Neuroscience Research on Attention to Input	8. Developing a Program Plan for Implementing NSBS Goals

Results

Interaction Bar Plot for Goal Writing Score

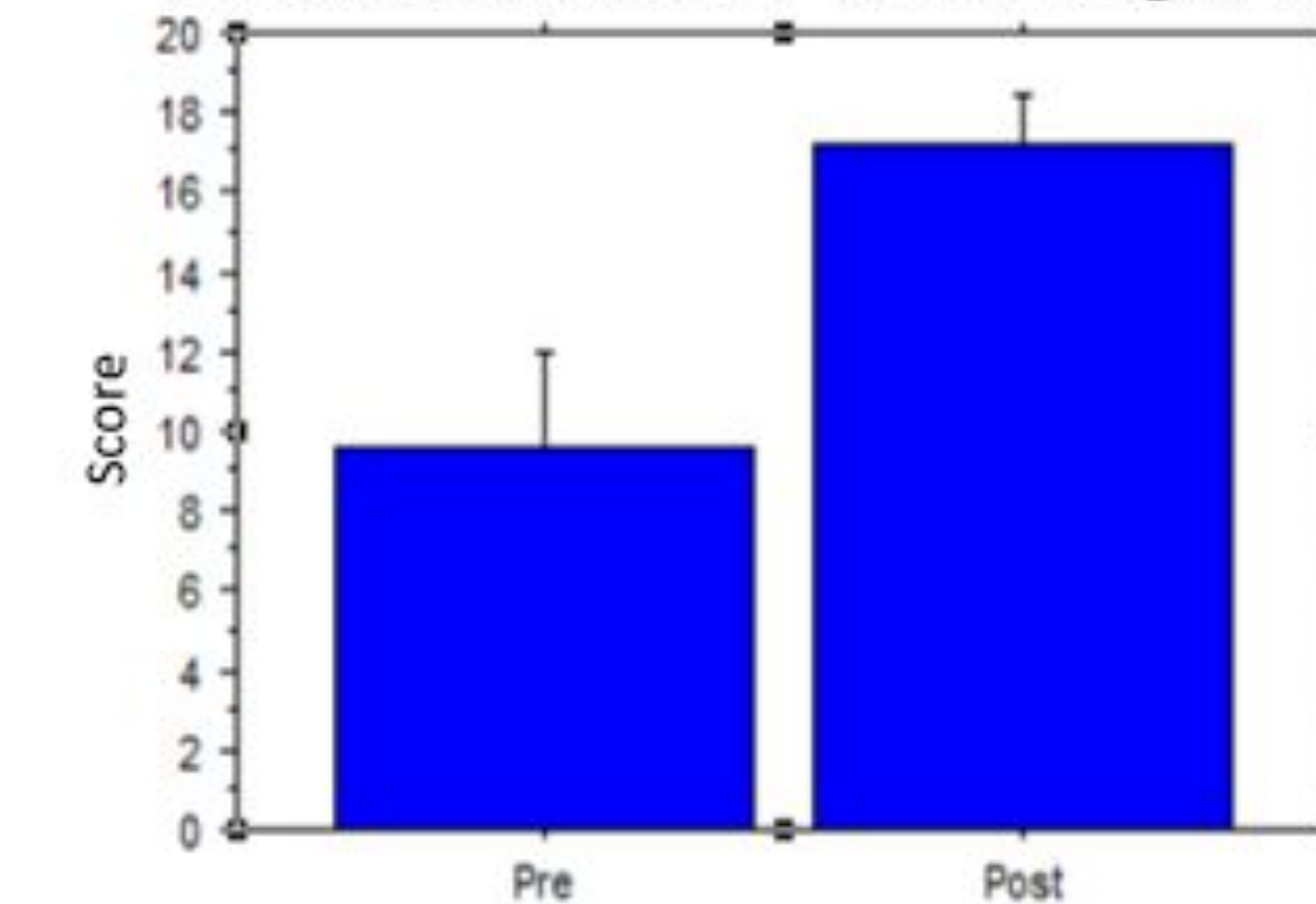


Fig 1. Participants significantly improved their scores on the goal writing evaluation ($t(14)=-3.31$; $p=0.005$).

Interaction Bar Plot for Goal Writing Satisfaction

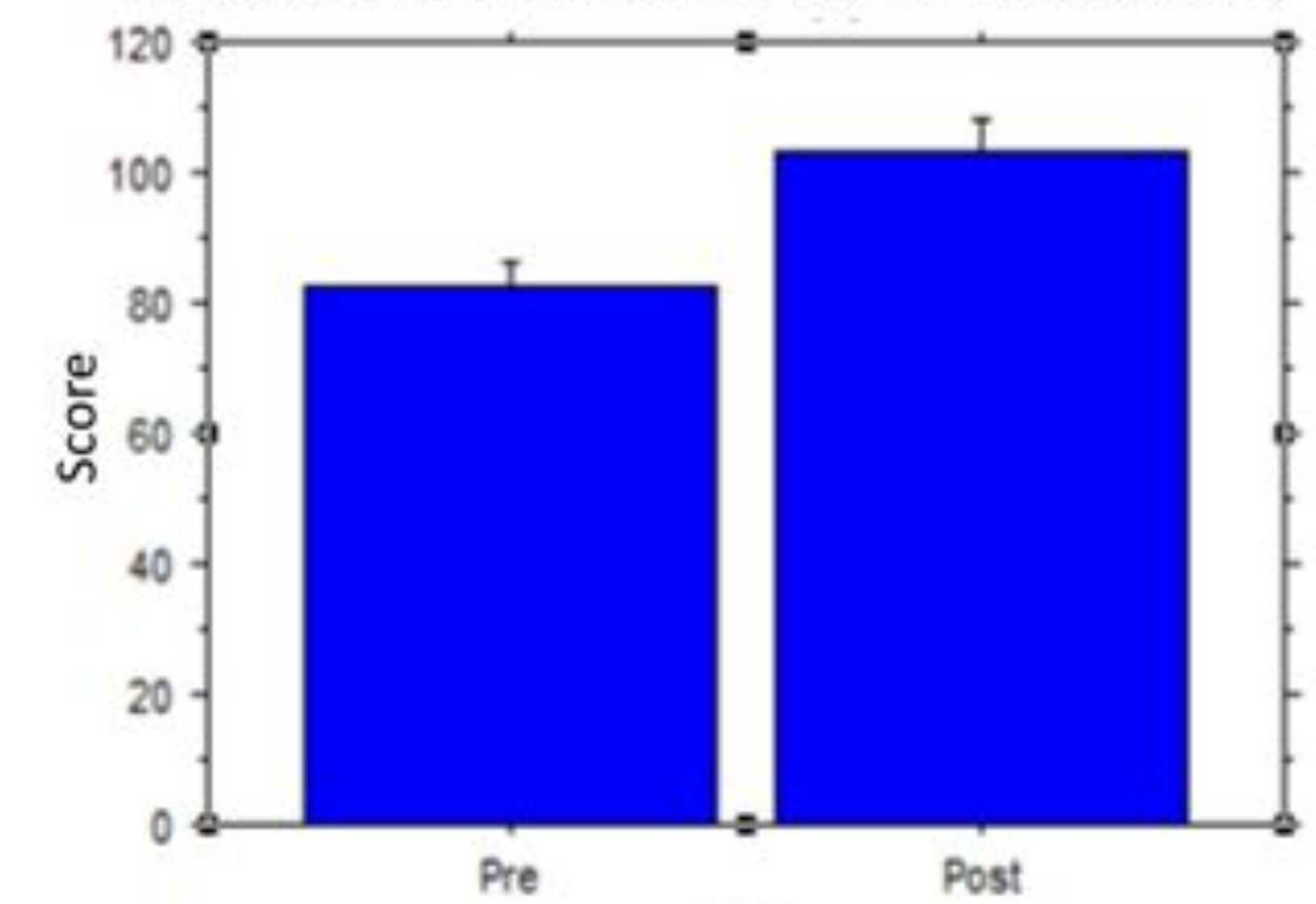


Fig 2. Participants' significantly improved their goal writing satisfaction ($t(14)=-5.55$; $p=0.001$).

Discussion

Feasibility and acceptability of the NSBSA training program.

- Based on all participants viewing at least 5/8 of the modules with an average of 7.3 and attending 4/8 Q&As with an average of 7.1, NSBS is feasible for autism service providers. The Course Satisfaction Survey found that most participants thought the modules were too long. Therefore, shortening the modules may increase feasibility.
- The Course Satisfaction Survey found that participants view the NSBSA program acceptable, indicating the trainings as useful, helpful, and enjoyable with intentions to continue using the techniques and recommending the training.

Pre- and post-training changes in goal writing satisfaction for autistic clients.

- Service providers showed significant improvements in their goal writing satisfaction.
- Service providers significantly improved their scores on a goal writing assessment indicating shifting their focus from remediating deficits to achieve normal milestones to writing goals that use autistic individual's strengths and provide the necessary supports to improve the functional abilities desired by the autistic individual..

Future randomized controlled trials are warranted to evaluate the efficacy of the NSBSA program for improving satisfaction and outcomes of autistic individuals.