

Case Study

Therapeutic Yoga-Based Curriculum for Treatment of Disruptive Behavior in Autism Spectrum Disorder: Mixed-Methods Single Case Study

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ABSTRACT

Disruptive behaviors are displayed by the majority of individuals with autism and impede skill acquisition and adaptive behavior development. S.T.O.P. and Relax is a customizable therapeutic yoga-based relaxation program for children that teaches relaxation and coping skills. The program was delivered to a child with autism who demonstrated disruptive, externalizing behaviors. A mixed-methods single case study design assessed the impact of this program. Measures of behavior showed reductions in disruptive behavior and improvements in areas of irritability and inappropriate language. Qualitative findings provided suggestions for implementing and adapting the program across settings.

Keywords: *Yoga Therapy, Disruptive Behavior Treatment, Autism Treatment, Movement Therapy, Therapeutic Yoga-Based Curriculum, Mixed-Methods Research*

Disruptive Behavior in Autism

Disruptive behaviors, such as defiant behavior, aggression, rule-breaking, impulsivity, and interpersonal problems, are observed in approximately 50 to 70 percent of individuals diagnosed with autism (Lecavalier, 2006; Gadow et al., 2004). Approximately one-quarter of youth with autism are also diagnosed with a Disruptive Behavior Disorder, such as Oppositional Defiant Disorder (Yale University, 2019).

Disruptive behaviors impede treatment of autism and general life-functioning. Disruptive behaviors can lead to placement in more restrictive educational settings and disrupted interpersonal interaction, particularly in families. These outcomes impede direct autism intervention and establishment of beneficial relationships, both of which can improve adaptive functioning (Yianni-Coudurier et al., 2008). Conversely, reductions in disruptive behaviors in this population are associated with improved adaptive functioning (Scahill et al., 2012; Williams et al., 2006).

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Received: January 17, 2023; Revision Received: April 15, 2023; Accepted: April 18, 2023

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Yoga-Based Therapy as Treatment

Traditional yoga practice integrates physical movement and mental and spiritual practices for integration and benefit of those domains. Yoga has been utilized with children, often in schools (Khalsa and Butzer, 2016), to provide mental and physical therapeutic benefits (Birdee et al., 2009). In a 2007 National Health Interview Survey (NHIS), mind-body therapies, including yoga, were the most favored complementary and alternative medicine (CAM) practices among children with behavioral, emotional, or mental health problems (Stephens, 2017).

As emotional, behavioral, and interpersonal dysregulation are core features of autism and are interconnected (Samson et al., 2014), yoga-based therapeutic interventions have been utilized to treat autism symptoms. Yoga programs, modified to target specific populations and settings, have been found to lead to improved interpersonal and self-regulating behaviors (Radhakrishna et al., 2010), attending and self-regulation skills (Behar, 2006) reduction of challenging behaviors and increased concentration (Rosenblatt et al., 2011), socio-emotional behaviors (Litchke et al., 2018), and increased compliance and reduced hyperactivity (Koenig et al., 2012).

In 2001, a group of clinicians formulated a program to teach relaxation skills to youth with autism. The relaxation program included yoga exercises and breathing, observational learning, guided imagery, visual aids, music and soft lighting, stories to demonstrate functional application of skills, and mnemonics. Based on initial research, this program was expanded in 2004 to include additional visual aides to teach relaxation skills and was titled “S.T.O.P. and Relax” (Goldberg et al., 2004). Initial research with this program found it effective in decreasing youth participants’ heart rates from pre- to post-session.

Current Study

To date, there have not been any studies utilizing a mixed-methods approach investigating effects of implementing a therapeutic yoga-based program to address effects of disruptive, externalizing behaviors seen in autism. Mixed-methods research has been recommended as best-practice research in evaluating health outcomes (Regnault et al., 2018). The current study aims to use a mixed-methods approach, using qualitative data gathered from observation, along with measures of disruptive behavior to assess the impact of a therapeutic yoga-based program on a child exhibiting disruptive behavior associated with autism.

METHODS

Intervention

S.T.O.P. and Relax is a curriculum that integrates structured teaching, psychology, and yoga. The S.T.O.P. and Relax curriculum was designed by special education teachers, a psychologist, and a yoga therapist for use by educators and therapists working with students with autism spectrum disorder (ASD) or similar disorders characterized by dysregulated affect, motor coordination, and emotional regulation. The goal of the program is to help students learn to achieve a state of relaxation and to use self-calming skills to manage stress. S.T.O.P. and Relax is based on research and pilot trials. It includes a detailed manual describing the program and how to plan and guide multiple sessions to target specific issues, paired with instructive, adaptable visual cues and sample lessons that range in length from 5 to 30 minutes. The instructor guides the students in yoga-based breathing and movement exercises that promote deep breathing, muscle relaxation, strength, balance, and flexibility. Lessons provide repeated practice of varied but simple physical and breathing exercises that

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teach a child to shift the autonomic nervous system into relaxation mode, the opposite of fight/flight. The child then can self-calm and minimize or prevent outbursts. Students experience how it feels to be peaceful and calm; the lessons help them achieve a state of deep relaxation. The S.T.O.P. self-calming procedure (Soft face and shoulders, Take breaths, Open chest, Posture check) is designed to help generalize strategies learned in sessions to manage stressful real-world situations. S.T.O.P. and Relax is flexible to accommodate individual settings, time constraints, and students' ages and ability levels.

Participants

The clinician administering the program was a school psychologist ("psychologist"), and co-developer of S.T.O.P. and Relax, with experience leading the S.T.O.P. and Relax program with groups of students of varying ages and presenting issues.

"Dustin" (name has been changed) was recruited to participate in this study as a participant with whom the psychologist administering the intervention was providing services as a school psychologist. Dustin was a white, non-Hispanic male age 6 years, 10 months old at first session. Dustin resided with both parents and had no siblings. His family was middle-class. Dustin was verbal and demonstrated high average intelligence. He presented with frequent, intense externalizing problems, such as noncompliance and aggression. He was very vocal about his wishes and feelings. Dustin received school-based special education services according to his Individualized Education Plan (IEP). Initially he was identified as showing developmental delays and later diagnosed with mild ASD. For preschool, he attended a special education classroom housed in an elementary school. For kindergarten, he was placed in a general education classroom wherein the teacher had a paraprofessional aide. Throughout this period Dustin remained prone to intense tantrums.

After kindergarten, Dustin attended first grade in a general education setting as a special education student with an IEP. His services included counseling and occupational therapy. A paraprofessional aide was assigned to the classroom for part of the day. At the start of the school year, Dustin's physician prescribed medication to reduce irritability and aggression. Dustin continued to have frequent, intense tantrums at home and at school. A Functional Behavioral Assessment conducted at school showed that Dustin sought to avoid instructional tasks or social situations that he found difficult. His frustration quickly escalated into anger, aggression, and tantrums.

When calm, Dustin was friendly and affectionate. Often, he hugged his teacher and told her he loved her. Dustin had strong vocabulary development, reasoning ability, and visual-spatial perception. When calm, Dustin could talk with an adult about his feelings, his behavior, and his choices. He was receptive to coaching.

Sensory-motor difficulties caused Dustin to be distractible and physically restless. Everyday sounds were highly distracting and even irritating to him. Dustin had difficulty registering his position in space. This caused him to seek extra physical input by wiggling and by constantly touching things, including people. He was easily over-stimulated and had difficulty "winding down," whether he was overly excited or overly angry. Fine-motor deficits adversely impacted Dustin's handwriting. He noticed that his writing was poor and found this frustrating and embarrassing. Accordingly, he avoided work that required writing.

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Dustin's first grade teacher implemented a classroom behavioral system with clear expectations, rewards, and consequences. The system included a color chart on which student's names were moved up or down to indicate the degree to which their behavior met the expectations. Dustin understood the system and was interested in the associated rewards. Unfortunately, having his name moved down on the color-coded behavioral chart triggered a tantrum.

In summary, Dustin's tantrums continued despite the various interventions implemented previously and currently. If his tantrums did not abate, a more restrictive school placement, providing more intensive services, would be warranted.

Administration

Goals were for Dustin to develop self-calming skills and initiate self-calming routines in response to practiced cues, thereby decreasing the frequency of tantrums. Self-calming skills, and a reduction in tantrums, were vital to increase Dustin's participation in instruction, his cooperative social interaction, and his continuation in the general education setting.

In collaboration, the school psychologist and classroom teacher devised a plan to use S.T.O.P. and Relax to develop Dustin's self-calming skills. They expected he would progress most rapidly given frequent practice, and that he would apply the skills most readily when practicing the skills in the classroom, with his teacher and peers. By learning the skills along with him, the classmates and the paraprofessional working in Dustin's classroom would also serve as models and learn how to cue Dustin's use of the techniques.

To prepare for implementation, the teacher and paraprofessional read the S.T.O.P. and Relax Instructor's Manual. The school psychologist, who was experienced in using S.T.O.P. and Relax, created 10-minute lessons in the form of PowerPoint slide shows. Every two weeks, on Friday afternoon, the psychologist rehearsed a new lesson with the teacher. The teacher led the class in the lesson each morning after announcements. Students practiced on floor mats. The mats served as visual cues, helping students learn to keep hands and feet within the boundaries of personal space. The program was administered daily by classroom personnel and two-to-three times per week by the psychologist for two months.

Research Design

The research design of this study was a mixed-methods repeated measures single case study with AB design. Outcome measures were administered at multiple points (described in Measures section) before the intervention (pre-intervention) and after the intervention (post-intervention). Neither participant nor intervention were randomized.

The researcher implementing the intervention collected outcome data. Qualitative data were gathered before, during, and after the intervention. Relevant qualitative themes were identified by reflecting upon major thematic material that describes the implementation of the intervention, the progress of the participant, and information that would aid in implementation of the intervention by other clinicians.

Measures

Behavior Frequency Chart

A grid of the school day broken into 15-minute intervals was constructed. Dustin's teacher was trained to indicate if a behavioral incident occurred at all during a 15-minute period. A

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behavioral incident was defined as displaying an explosive outburst of shouting and physical agitation involving flailing, hitting, and kicking. The psychologist worked with the teacher to observe compliance with expected charting behavior. The teacher was able to indicate all behavioral incidents appropriately before research began, as supported by review of observational notes and review that the chart was correctly coded.

The number of daily behavioral incidents from pre- to post-intervention were compared by fitting regression models with (full model) and without (reduced model) a parameter specifying intervention timepoint. A maximum likelihood ratio test was used to compare the models.

Aberrant Behavior Checklist

The psychologist also trained the teacher to complete the Aberrant Behavior Checklist (ABC), a measure of adaptive functioning for individuals with developmental disabilities. The ABC includes five broad domains: Irritability, Agitation, & Crying; Lethargy/Social Withdrawal; Stereotypic Behavior; Hyperactivity/Noncompliance; and Inappropriate Speech. The ABC has strong validity with this population and sensitivity to change.

T-scores (mean = 50, SD = 10) from these domains at pre- and post-intervention were calculated. Additionally, a metric called “Standardized Change” (mean = 0, SD = 1) was calculated by subtracting pre-intervention from post-intervention and dividing by 10 (SD), as a measure of the number of standard deviations of change from pre- to post-intervention to aid in interpretation of T-scores. Thus, a Standardized Change Value of -1.00 represents one standard deviation decrease in ABC T-scores from pre- to post-intervention.

Research Questions

Specifically, the study sought to answer the following:

1. Was there a change in disruptive behavior from before implementation of the program to after implementation, as assessed by a structured measure of disruptive behavior frequency?
2. Was there a change in adaptive behavior, as assessed by the ABC?
3. Were there changes in behavior assessed by qualitative measures?
4. How was the program implemented with this individual and were any modifications necessary?

RESULTS

Qualitative Data

The first week, Dustin refused to practice with his class. With his parents’ consent, the psychologist adjusted the intervention by adding an early morning, individual practice in her office (Dustin routinely arrived at school 20 minutes early). Dustin participated cooperatively in the individual practice. Then he also participated in the class practice led by the teacher.

Observing Dustin practice, the psychologist noted that his movements were tentative and inhibited. The individual rehearsals boosted his confidence for practicing with the class. The psychologist continued early morning, individual practice with Dustin on the 2-3 days per week she was at his school.

Direct observation of S.T.O.P. and Relax practice revealed that low strength in Dustin’s core muscles contributed to his tentative movements and lack of confidence. The psychologist

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therefore created S.T.O.P. and Relax lessons that emphasized exercises that build core strength.

Thus prepared, Dustin actually enjoyed demonstrating new exercises to his classmates.

Dustin asked questions about the purpose of the exercises. The psychologist used the color-coded Incredible 5-Point Scale (Buron & Curtis, 2012) to show him that relaxation put him in the zones of “safe” behaviors (green or blue), tension put him in the “warning zone” (yellow), and tantrums put him in the zones of “unsafe” behaviors (orange, red). The classroom behavior chart used the same colors to designate optimal vs. problem behavior. Dustin not only grasped the purpose of the exercises, but he also reinterpreted the classroom chart in terms of “warnings” and “safety.” He no longer saw a demotion on the chart as punitive, but as a guide to self-management.

Dustin’s teacher and parents stated that he still might protest an instruction, but without having a tantrum. His favorite ways to calm himself were deep breaths, the “S.T.O.P.” self-calming routine, or taking a break on his mat in “child’s pose.” He showed his parents these favorite exercises. A poster showing the S.T.O.P. sequence was provided to his parents, to facilitate home practice and cued use of the self-calming procedure.

With tantrums decreased, the next step was to increase Dustin’s work production. The psychologist created a point chart with a visual schedule of the school day. Dustin could earn up to 36 points a day by following directions and completing his work. He traded points for rewards within the classroom system. On the first day Dustin earned 21 points. Over the following weeks, his performance showed an upward trend. He liked to see the point graph and say, “I am going up and up!”

For Dustin’s teacher and aide, their direct presentation and support of the lessons conducted in the classroom optimized their ability to cue Dustin’s timely use of the self-calming procedures throughout the school day. The classroom-based practice also facilitated Dustin’s association of these strategies with the classroom and the classroom behavior chart and assured him that his peers accepted the strategies. These elements of the intervention facilitated his functional use of the self-calming skills.

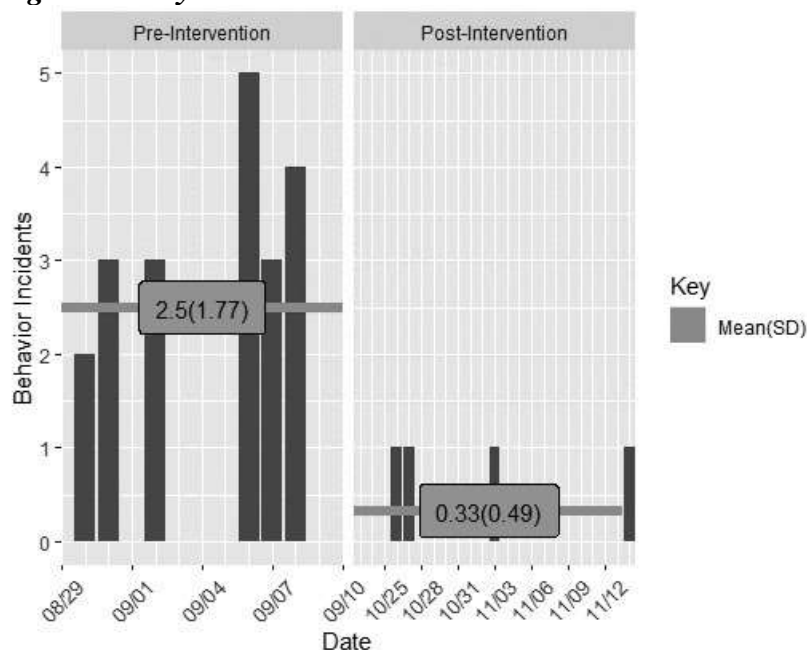
Use of varied data collection measures was helpful in illuminating different aspects of progress. The frequency chart was ideal for continuous tracking of a specific behavior. In Dustin’s case, if the daily charts had shown that tantrums were not decreasing, the psychologist would have immediately made adjustments to improve the intervention. The ABC checklist can only be given, at most, once a month. By comparing pre- to post-intervention assessments, the ABC provided detailed information about a range of behaviors.

Behavioral Chart

Figure 1 shows a barplot of the number of behavioral incidents. There were behavioral problems on 6 of the 8 baseline days, lasting from 30-75 minutes, with an average of 50 minutes of tantrums per day. Following initiation of the intervention, tantrums occurred on only 4 of 12 days and lasted 15 minutes or less.

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Figure 1 Daily Behavioral Incidents Plot



There was a significant difference between scores Pre-Intervention compared to post-Intervention ($\chi^2(1) = 14.64, p = .001$), indicating a significant reduction (-2.13, 95% CI [-3.31, -0.96]) in behavioral incidents.

ABC

Prior to intervention, item review of the teacher’s ratings on the ABC indicated particularly strong problems of overactivity, noncompliance, tantrums, aggressive behavior, and excessive, loud talking and yelling. Post-intervention, the ABC profile showed improvement in all areas, with particular decreases in Irritability and Inappropriate Speech: excessive, loud talking and yelling.

Table 1 shows ABC T-scores before the intervention was implemented (Pre-Intervention T-Score) and after (Post-Intervention T-Score). The column “Standardized Change” shows the number of standard deviations of change from Pre- to Post-Intervention. Generally, more than one standard deviation of change is considered a significant change. For example, Dustin had a T-Score of 81 in Irritability before intervention, more than 3 SD above the mean. He scored 71 after intervention, still more than 2 SD above the mean, but showed a decrease of more than one SD. Ratings of behaviors associated with loss of temper were decreased in severity. Decreases of more than one standard deviation, suggesting significant change, were observed in Irritability and Inappropriate Speech scales.

Table 1 ABC Scores and Change Pre- and Post-Intervention

Scale	Z-score		Standardized Change
	Pre-Intervention	Post-Intervention	
Irritability	81	71	-1.069
Lethargy	56	49	-0.694
Stereotypic Behavior	56	50	-0.546
Hyperactivity	72	67	-0.544
Inappropriate Speech	84	55	-2.817

DISCUSSION

Summary

This study aimed to address the absence of mixed-methods case study research on yoga-based therapy programs to address disruptive behavior seen in individuals with autism. The S.T.O.P. and Relax yoga-based therapy program was implemented with an approximately 7-year-old child with autism and history of disruptive, externalizing behaviors by a psychologist with support of classroom personnel for two months. Significant reductions in disruptive behavior were observed from pre-intervention to post-intervention. Significant improvements were found in domains related to irritability and inappropriate speech. Information about adapting the program to meet a specific child's needs and for optimal implementation was also found.

Program Implementation

The close, frequent communication between the school psychologist and teacher facilitated the success of this intervention. For example, when participation refusal was noted in the first intervention session with his class, the psychologist was immediately informed and began the early morning, individual sessions that boosted participant confidence and participation with the class.

Observation of response to movements was important to customize the program. When observation revealed physical limitations, the program was adjusted to build strength in body areas to properly engage in the movements.

Related to these observations, having frequent sessions was beneficial for practice, to engage with the participant, and for accurate observation and program modification. Conducting the program in the classroom helped skills learned in the program generalize to use in that setting and supported incorporation of a behavioral modification program into the classroom. Continued progress monitoring, using several instruments, was valuable to provide feedback to stakeholders and to monitor program efficacy.

Limitations

There are limitations to external validity in the research design of this study, including limited generalizability of findings, lack of comparison with control group, lack of blinding of the researcher, and no randomization of participants.

The S.T.O.P. and Relax program was designed to be customizable and allow for adjustments to meet treatment needs of individuals. There were several modifications and accommodations made to incorporate the participant's needs described in this study. These modifications to personalize the program add possible confounding variables to research findings. The adjustments entailed choosing appropriate movements to address the participant's physical limitations, incorporating a group to support the participant, and including a behavior modification program to monitor participation and progress. Procedures for incorporating such modifications are described in the S.T.O.P. and Relax manual. Nonetheless, generalizability of the findings from this study to use of the program with others with similar issues depends on appropriate implementation of the accommodations by the treatment provider.

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Implications and Future Research

The results from this study suggest that S.T.O.P. and Relax is a useful tool to reduce disruptive behavior of the type displayed by individuals with autism. The program is customizable, which allows it to be individualized to meet specific needs. It is engaging for participants and peers to practice frequently, which should increase skill-retention. It teaches coping skills useful in reduction of disruptive behaviors and improves domains of adaptive behavior.

The program should continue to be researched. Future studies should include using the program with multiple group members, involving persons with additional disorders and presentations, including long-term follow-up in the research design, and incorporating additional measures as metrics of program impact.

REFERENCES

- Aman, M. G. and Singh, N. N. (2017). *Aberrant Behavior Checklist - 2nd Edition (ABC-2)*. Slosson Educational Publications, Inc.
- Behar, M. (2006). *Yoga therapy for autistic children*. [Last accessed on 2022, April 2018]. Available from: <http://www.peacefulpathwaysyoga.com/pdfs/Yoga-Therapyfor-Autistic-Children-by-Miriam-Behar.pdf>
- Birdee, G.S., Yeh, G.Y., Wayne, P.M., Phillips, R.S., Davis, R.B., and Gardiner, P. (2009). Clinical applications of yoga for the pediatric population: a systematic review. *Academy of Pediatrics* 9(21), 2–9. 10.1016/j.acap.2009.04.002
- Buron, K. D. and Curtis, M. (2012). *The Incredible 5-Point Scale: The Significantly Improved and Expanded Second Edition*. AAPC Publishing.
- Gadow, K. D., DeVincent, C. J., Pomeroy, J., & Azizian, A. (2004). Psychiatric symptoms in preschool children with PDD and clinic and comparison samples. *Journal of Autism and Developmental Disorders*, 34, 379-393.
- Goldberg, L., S. Miller, D. Collins, and D. Morales. (2004). *S.T.O.P. and RELAX, a Visual Curriculum*. Autism Asperger Publishing Company.
- Gunaseelan, L., Vanama, M. S., Abdi, F., Qureshi, A., Siddiqua, A., & Hamid, M. A. (2021). Yoga for the management of Attention-Deficit/Hyperactivity Disorder. *Cureus*, 13(12), e20466. <https://doi.org/10.7759/cureus.20466>
- Khalsa, S.B.S. and Butzer, B. (2016). Yoga in school settings: a research review. *Annals of New York Academy of Science*. 1373, 45–55. 10.1111/nyas.13025
- Koenig, K. P., Buckley-Reen, A., & Garg, S. (2012). Efficacy of the Get Ready to Learn yoga program among children with autism spectrum disorders: a pretest-posttest control group design. *The American journal of occupational therapy: official publication of the American Occupational Therapy Association*, 66(5), 538–546. <https://doi.org/10.5014/ajot.2012.004390>
- Lecavalier, L. (2006). Behavioral and emotional problems in young people with pervasive developmental disorders: Relative prevalence, effects of subject characteristics, and empirical classification. *Journal of Autism and Developmental Disorders*, 36, 1101-1114.
- Litchke, L. G., Liu, T., & Castro, S. (2018). Effects of multimodal mandala yoga on social and emotional skills for youth with autism spectrum disorder: an exploratory study. *International Journal of Yoga*, 11(1), 59–65. https://doi.org/10.4103/ijoy.IJOY_80_1
- Radhakrishna, S., Nagarathna, R., & Nagendra, H. R. (2010). Integrated approach to yoga therapy and autism spectrum disorders. *Journal of Ayurveda and Integrative Medicine*, 1(2), 120–124. <https://doi.org/10.4103/0975-9476.65089>

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- Regnault, A., Willgoss, T., Barbic, S. et al. (2018). Towards the use of mixed methods inquiry as best practice in health outcomes research. *Journal of Patient Reported Outcomes* 2, 19. <https://doi.org/10.1186/s41687-018-0043-8>
- Rosenblatt, L. E., Gorantla, S., Torres, J. A., Yarmush, R. S., Rao, S., Park, E. R., Denninger, J. W., Benson, H., Fricchione, G. L., Bernstein, B., & Levine, J. B. (2011). Relaxation response-based yoga improves functioning in young children with autism: a pilot study. *Journal of Alternative and Complementary Medicine*, 17(11), 1029–1035. <https://doi.org/10.1089/acm.2010.0834>
- Samson, A. C., Phillips, J. M., Parker, K. J., Shah, S., Gross, J. J., & Hardan, A. Y. (2014). Emotion dysregulation and the core features of autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 44(7), 1766–1772. <https://doi.org/10.1007/s10803-013-2022-5>
- Scahill L, McDougle C.J., Aman M.G., et al., for the Research Units on Pediatric Psychopharmacology Autism Network. (2012). Effects of risperidone and parent training on adaptive functioning in children with a pervasive developmental disorders and serious behavioral problems. *Journal of American Academy of Child and Adolescent Psychiatry*, 51, 136-146.
- Stephens I. (2017). Medical yoga therapy. *Children*, 4(2), 12.
- Williams SK., Scahill L, Vitiellio B., et al. (2006). Risperidone and adaptive behavior in children with autism. *Journal of American Academy of Child and Adolescent Psychiatry*, 45, 431-439.
- Yale University. (2019, April 18). Behavioral disorders in kids with autism linked to reduced brain connectivity. *SciencesDaily*. Retrieved April 18, 2022 from www.sciencedaily.com/releases/2019/04/190418164340.htm
- Yianni-Coudurier, C., Darrou, C., Lenoir, P., Verrecchia, B., Assouline, B., Ledésert, B., Michelon, C., Pry, R., Aussilloux, C., & Baghdadli, A. (2008). What clinical characteristics of children with autism influence their inclusion in regular classrooms? *Journal of Intellectual Disability Research: JIDR*, 52(10), 855-63.

Acknowledgement

The author(s) appreciates all those who participated in the study and helped to facilitate the research process.

Conflict of Interest

The author(s) declared no conflict of interest.

How to cite this article: Krodman-Collins, D. & Syzdek, B.M. (2023). Therapeutic Yoga-Based Curriculum for Treatment of Disruptive Behavior in Autism Spectrum Disorder: Mixed-Methods Single Case Study. *International Journal of Indian Psychology*, 11(2), 142-151. DIP:18.01.011.20231102, DOI:10.25215/1102.011