Schmoga: Yoga-based self-regulation programming for children with Autism Spectrum Disorder in the school environment

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Abstract

As the number of children diagnosed with autism spectrum disorders (ASD) increases, the need for practical, scientifically-based interventions becomes evident (Koenig, Buckley-Reen & Garg, 2012). In order to see that the needs of this population are being met, it is imperative that we develop services that can be readily attained within the child’s current environment. Occupational therapists are uniquely qualified to implement these interventions because of their dedication to supporting participation within context (AOTA, 2014). In terms of offering practical solutions to occupational problems, the American Occupational Therapy Association stated in a position paper that complementary and alternative medical practices, such as yoga, may be appropriately incorporated into occupational therapy practice as a way to encourage a client’s engagement in meaningful occupations (2014). To assess the proposition that yoga-based interventions can be a viable alternative to teach self-regulation to children with ASD within the school environment, a pilot program was developed and implemented at Cherrelyn Elementary School with children ages 5-11 over the course of 12 weeks. Using personal interviews and the Teacher Assessment of Targeted Behaviors, the program was found to be a valuable method of addressing sensory-related behaviors, teaching self-regulation, and promoting positive peer interactions.

Program Design

- **Curriculum Design:** The “Schmoga” curriculum was based off of social skills and relaxation activities initially incorporated into the students’ daily routine by the school psychologist and speech language pathologist (SLP). Additionally, yoga-based activities were designed in collaboration with Radiant Beginnings Yoga and included in the program.
- **Participants:** 7 students (ages 5-11) of Cherrelyn Elementary School diagnosed with Autism Spectrum Disorder (ASD) who currently receive therapy services within the educational setting.
- **Procedures:** Participants were identified by the school SLP according to their current needs and Individualized Education Plans (IEPs). Parents signed a waiver of consent for the child to participate in the group three times each week over the course of a 12-week period. Following consent, the Teacher Assessment of Targeted Behaviors was developed and distributed to the regular and special education classroom teachers of each participant via Survey Monkey. Based on the perceived areas for improvement identified by the teachers and therapists, curriculum was created and implemented to address three primary areas: 1) sensory needs, 2) improved self-regulation skills, and 3) additional opportunities for the students with ASD to practice engaging in social activities with peers.
**PHASE I: GATHERED INFORMATION**

- Identified participants and targeted behaviors.
- Gathered foundational information about the population of children with ASD at Cherrelyn Elementary.
- Collaborated with community yoga instructor, school therapists, and staff to discuss expectations for the program.

**PHASE II: PREPARED FOR THE PROGRAM**

- Considered evidence-based support for the use of yoga-based self-regulation programs for children with ASD and identified interventions that were successful with other groups.
- Observed community practitioners to identify therapeutic activities that could be used to improve occupational performance.
- Interviewed teachers and therapists to ascertain the strengths of the participants.

**PHASE III: IMPLEMENTATION AND CURRICULUM DESIGN**

- Conducted 12-week pilot program and developed lesson plans each week to address the sensory and social needs of the participants.
- Created Schmoga curriculum and visual supports to engage the students and organize material.
- Researched the sensory perceptual learning styles of children with ASD and included explanations of the occupational benefits of each activity.

**PHASE IV: CONCLUSIONS**

- Gathered information from interviews and the Teacher Assessment of Targeted Behaviors following the conclusion of the 12-week program to see if there were any notable improvements in student performance in the classroom setting.
- Provided results of pilot program to school therapists and Radiant Beginnings Yoga to encourage the use of yoga within the classroom setting with students who have ASD.
- Printed Schmoga curriculum as a basis for future instruction and discussed results.
Literature Review

Current literature supports the use of yoga and mindfulness strategies as an effective complementary therapy for improving quality of life and physical outcome measures within the pediatric population. Galantino, Galbavy, & Quinn (2008) conducted a systematic review of the literature in order to determine if the physiological benefits of yoga could benefit children through the rehabilitation process. Their findings indicated that “yoga practice may benefit children with mental challenges by improving their mental ability, motor coordination, and social skills” (p. 78). Additional studies support the premise that participation in exercise-based interventions results in substantial progress in areas of motor and social performance for those with ASD (Sowa & Meulenbroek, 2011). When this form of physical exercise is coupled with opportunities to apply core sensory processing concepts within an authentic environment, children can develop more adaptive skills and improve their occupational performance (Dunn, 2008).

Within the school environment, it is imperative for educational professionals to facilitate engagement in meaningful activities, promote social engagement, and improve academic performance (Sze, 2009). Therapists and educators are continually contributing to the current literature to support the use of yoga as a vehicle to promote self-regulation, mindfulness, and appropriate peer interactions in a way that is readily available, cost effective, and client-centered. In relationship to developing relaxation strategies for students with ASD, researchers followed 24 children ages 3-16 years old with ASD over the course of an 8-week relaxation program and evaluated their relaxation response. Results of the study indicated that students who participated in the multimodal relaxation program showed significant improvements in behavioral and cognitive performance when measured with the BASC-2, particularly those ages 5-12. Furthermore, researchers suggest that future studies consider the substantial impact sensory processing has on one’s ability to successfully self regulate and engage in appropriate peer interactions (Rosenblatt et al., 2011). In exploring avenues to address the rapidly growing need for cost effective and client-centered services for the ASD population, yoga stands out as a successful, complementary intervention to address each of the core symptoms associated with the diagnosis (Ehleringer, 2010).
Discussion

**Summary**

The purpose of this residency project was to design and implement a yoga-based self-regulation program within the school environment for students with Autism Spectrum Disorder. As the number of children diagnosed with ASD continues to increase, it is imperative that parents, teachers, and therapists explore the different forms of cost effective, client-centered complimentary therapies available to address the deficits associated with ASD. The diagnostic criteria for autism include the presence of restricted, repetitive patterns of behavior, interests, or activities, and deficits in social communication and social interaction across multiple contexts. Additional diagnostic criteria presented in the DSM-5 state that the symptoms must be present in the early developmental period, the symptoms must cause clinically significant impairment in school, occupational, or other important areas of functioning, and the disturbances cannot better explained by intellectual disability or global developmental delay (CDC, 2015). With the help of regular and special education classroom teachers, the pilot program was designed to address each of these diagnostic criteria in the educational setting in order to improve the students’ occupational performance. While results from the pre- and post-test assessment of targeted behaviors indicated that the most significant changes were noted in ability to self-regulate, the most encouraging measure of the success of the program can be gleaned from testimonials from the participants, teachers, and therapists. The supplemental educational material and Schmoga curriculum created over the course of the 12-week program was directed at future instructors in the hopes of continuing the programming and promoting the use of complimentary therapies and relaxation strategies within a context that is familiar to the students.

**Limitations**

- Each of the participants was an elementary-aged student who received additional services within the educational context. Although improvements were noted in self-regulation, it is difficult to determine if those changes were a direct result of the Schmoga intervention.

- The sensory needs of each child with ASD will vary greatly. The sensory preparation activities were designed based off of the seven perceptual learning styles in hopes of addressing a multitude of sensory processing challenges that may be present within a group of children.

- Variations for activities are included within the curriculum to address a range of skill levels. However, modification of each exercise must be based on the student’s individual strengths and the curriculum may be difficult to adapt to students who are non-verbal or have significant physical limitations.
Recommendations for Future Programming

- A formal study using standardized performance measures would provide information on any changes in gross and fine motor skills, social communication, and sensory processing skills. The Teacher Assessment of Targeted Behaviors was created primarily to develop the program curriculum rather than objectively measure student outcomes.

- Additional measures need to be taken to see that parents are cognizant of the different calming and self-regulation strategies being implemented in the school environment in order to increase the likelihood that students will translate these skills to multiple contexts.

- It would be beneficial to conduct a program with a corresponding longitudinal study to assess the outcome measures over a longer period of time.

- Visual supports were created based off of the Social Thinking terminology originally created by Michelle Garcia Winner (2007) and implemented to provide structure and visual support for the students. While this language served as a great basis for teaching social skills within the group, it is important to incorporate social language the students are most familiar with in order to maintain continuity across contexts.

Implications for Occupational Therapy

- Occupational therapists are skilled in evaluating the client within his or her contexts and environments. Knowledge of the interaction between the person, their skills, and the environment helps occupational therapists create interventions that consider the person from a holistic perspective.

- Occupational therapists can use the Model of Human Occupation and the Cognitive Behavioral Theory to establish positive routines for the students in the least restrictive environment.

- Occupational therapists can be involved in educating teachers and yoga instructors on the occupational benefits of yoga and self-regulation strategies.


