Symposium Title: The Role of Coaching in Interventions Promoting Evidence-Based Practices in Children and Adults with Autism Spectrum Disorder

Chair: Brianne Tomaszewski1,2

Discussant: Laura Hall3

Overview: Autism spectrum disorder (ASD) is characterized by difficulties in social communication and repetitive and restricted behaviors. The prevalence of ASD has accelerated dramatically in the past two decades and is estimated to be 1 in 59 children in the United States (Baio et al., 2018). The increasing prevalence has led to an estimated economic burden of $461 billion in 2025, including medical and non-medical services, as well as productivity loss (Leigh & Du, 2015). Despite the identification of evidence-based practices that show evidence of meaningful effects on outcomes in individuals with ASD, there is a gap between research and practice in community settings (Cook & Odom, 2013; Locke et al., 2015). Recently, researchers have developed treatment models in school-aged children that utilize community-partnered approaches that include coaching as an integral component. These approaches improve child outcomes when providers receive training and implement interventions with fidelity (Brookman-Frazee, Drahota, & Stadnick, 2012; Stahmer, Suhrheinrich, & Reith, 2016). However, it is less clear how coaching quality and acceptability may impact outcomes in both children and adults with ASD. The three presentations in this symposium will discuss how coaching impacts interventions and intervention outcomes for children and adults with ASD. The first presentation will address the quality of coaching as an important indicator of effects on school quality in a school-based professional development model implementing evidence-based practices for elementary school students with ASD. The second presentation will analyze teacher and student outcomes following classroom pivotal response training, which incorporates coaching through video feedback. Finally, the third presentation will describe the feasibility and acceptability of a self-management exercise program in adults with ASD, extending the application of coaching to family or community members. Collectively, these presentations highlight the use of coaching to promote the use of evidence-based practices in children and adults with ASD.

References/Citation


1University of North Carolina at Chapel Hill TEACCH Autism Program
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Paper Title: Coaching and Promoting Quality in School-based Comprehensive Treatment Program for Children with Autism Spectrum Disorder

Authors: Samuel Odom², Ann Sam², Brianne Tomaszewski¹,², Ann Cox²

Introduction: Based upon the current prevalence rate, there are now about 860,000 students with Autism Spectrum Disorder (ASD) enrolled in public schools (grades K-12) in the U.S., resulting in a greater demand for treatment services in public schools. Federal law requires that teachers and other service providers provide high quality programs for children with ASD. A question exists, however, about the present level of program quality in public schools today. For high school programs, Kraemer et al. (2020) found that program quality was mediocre to poor, and a subsequent intervention program was successful in improving program quality (Hume et al., 2020). However, little is known about program quality for children in elementary schools and the effects of interventions designed to improve quality. A key feature of professional development designed to promote program quality is the presence of coaching involving training and feedback to teachers. The purpose of this study is to examine quality of programs for children with ASD enrolled in elementary schools, describe an intervention approach designed to improve program quality, and determine how coaching affects changes in program quality across a school year.

Methods: This study took place in 59 elementary schools located in Central North Carolina. It was part of a larger randomized control study examining the effects of a comprehensive treatment model for promoting program quality and teachers' use of evidence-based practices for children with ASD. Schools were randomly assigned to the treatment and control groups. Data were collected in inclusive and noninclusive programs operating at each school. At the beginning of the school year and again at the end of the school year, research staff conducted the Autism Program Environment Rating Scale—Preschool/Elementary (APERS-PE) (Odom et al., 2018). The APERS-PE is a 59 item, 5-point rating scale that yields a total mean rating score and individual domain scores (across 10 domains). A rating of 5 indicates excellent quality, 3 indicates acceptable but mediocre quality, and 1 indicates poorest quality. Generally, scores below 3.00 were considered poor. Raters observed in school classes providing services to children with ASD, interviewed service providers and family members, and examined records to inform their ratings.

Results: The internal consistency of the APERS-PE in this study was .93 and .96 for the inclusive and noninclusive program APERS-PE. Inter-rater agreement checks occurred for 20% of the sample. Interclass corrections between the two raters for the inclusive and noninclusive programs were .97 and .98, respectively. At pretest there were no differences between the treatment and control groups. For the total group, the mean total scores were 3.10 and 2.96 for the inclusive and noninclusive programs. A characteristics pattern was for schools to score greater than 3.0 on Environment, Climate, Family and Team, and consistently lower than 3.0 on the Social, Communication, Independence, and Behavior. When changes across the school year were analyzed, the only significant difference between the treatment and control groups was for the social domain in the inclusive programs. However, program staff noted differences in the quality of coaching that existed for the treatment group. Four of the 11 coaches in the study did not meet expectations for quality of coaching and had to receive booster training sessions for coaching and weekly supervision. To determine the impact of coaching on program quality, pre-post APERS effect sizes were calculated for the schools with coaches needing supervision, schools with coaches meeting expectations for competence, and control schools. Consistently, schools with competent coaches had the largest effect sizes across domains, with schools with less competent coaches having effect sizes less than the other treatment schools and often similar to the control schools.

Discussion: A general finding of this study was that the quality of educational programs for children with ASD was mediocre to high for environmental features of the program (family involvement and teaming), but poor for intervention domains (social, communication, independence, and behavior). An intervention designed to promote program quality across the school year did not find consistent differences when compared to the control schools. However, the quality of coaching provided to the intervention schools appears to have a major impact on change in APERS scoring for school in the treatment group.
References/Citations:


Paper Title: Outcomes of Training and Coaching in an Efficacy Trial of Classroom Pivotal Response Teaching

Authors: Jessica Suhrheinrich³⁴, Sarah Rieth³⁴, & Aubyn Stahmer⁴⁵

Introduction: Classroom Pivotal Response Teaching (CPRT) is a naturalistic behavioral intervention for students with autism spectrum disorder (ASD) that was systematically adapted for teacher use (Stahmer, Suhrheinrich, & Rieth, 2016). Modifications to PRT were the result of a systematic mixed-methods evaluation of both intervention components and teacher use in classroom programs as well as input from teachers through focus groups and a community advisory board. This study evaluates the impact of CPRT resources and training and coaching protocol.

Methods: Participants in this randomized trial include special education teachers (n=126) and selected target students served for autism (n=318) from 17 school districts in San Diego County. The CPRT training and coaching protocol was developed based on current knowledge of adult learning theory, effective teacher professional development, and data from our pilot work (Darling-Hammond, Hyler, & Gardner, 2017; Odom, 2009; Stahmer et al., 2016). Specifically, this involved 12 hours of training using active-learning and practice-based instructional strategies, modeling of CPRT components, and ongoing 1:1 coaching throughout the school year with data-based feedback on fidelity of the intervention.

Results: On average, teachers demonstrated high participation in training sessions, with teachers attending an average of 5.79/6 group training sessions (range=4-6 sessions). Coaching appointment attendance was more variable, with 65% of appointments kept as originally scheduled. A total of 76% of teachers met fidelity criteria during at least one coaching session, according to the coaches’ in-person ratings of CPRT Fidelity. Among teachers who met the coach-rated fidelity criteria, it took 4.4 coaching sessions on average to pass (SD =2.76, range 1-12). Overall, CPRT fidelity was significantly higher at the end of the training year relative to the observation year (B = 0.24, *p*=.001), and teachers reported using CPRT an average of 47 minutes per day. Coaches’ ratings of teachers’ engagement during coaching sessions indicate high *enthusiasm for coaching, willingness to receive feedback* but lower *incorporation of previous feedback*. Additional data on teacher engagement in and satisfaction with coaching will also be presented.

Discussion: This study indicates the acceptability, feasibility, and efficacy of the CPRT training protocol and adds to the limited number of school-based RCTs evaluating interventions for students with ASD. These findings are promising in expanding the scale-up of EBP in school-based services.

References/Citations:


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**Paper Title:** Feasibility of A Self-Management Physical Activity Intervention Using Coaching to Support Adults with Autism Spectrum Disorder and Intellectual Disability

**Authors:** Brianne Tomaszewski¹², Melissa Savage⁶, & Kara Hume²

**Introduction:** Individuals with autism spectrum disorder (ASD) often do not engage in recommended levels of physical activity (Sorensen & Zarrett, 2014). Levels of physical activity engagement continue to drop as individuals with ASD as they move into adulthood (Garcia-Pastor, Salinero, Theirs, & Ruliz-Vicente, 2019). Due to lower levels of sedentary activity, adults with ASD are at risk for the development of co-occurring health conditions (Croen et al., 2015). There is emerging evidence for promising intervention strategies for promoting physical activity for individuals with ASD and intellectual disability (ID) including self-management strategies (goal setting, self-monitoring, and reinforcement) (Sorensen & Zarrett, 2014); but few studies have examined the impact of use of family or community members as coaches to promote exercise in this population. In this study, we evaluated the feasibility and acceptability of a self-management physical activity intervention using coaches to support adults with ASD and ID.

**Methods:** Participants included 18 adults with ASD and ID between the ages of 18 and 47 years (M = 25.78 years, SD = 7.04 years). Their average nonverbal IQ was 60.7 (SD = 9.71, range = 34 - 69). Participants in both groups received a fitness tracking device (Fitbit Flex 2™), training on how to use the device, and were instructed to wear the Fitbit daily. Following a week-long baseline period to determine acceptability of wearing the Fitbit, adults with ASD and ID were randomly assigned to the Fitbit + Coaching Group (N=9) or the Fitbit Only Group (N=9). Coaches in the Fitbit + Coaching group were either a family or community member who knew the adult well (e.g., parent, respite care provider). The coaches participated in a 2-hour web-based training on how to promote self-management strategies in adults with ASD, including goal setting, scheduling exercise sessions, setting reminders, implementing self-evaluating and self-monitoring procedures, and reinforcement. Coaches then conducted training with the adult with ASD to teach the adult self-management strategies. Researchers measured fidelity weekly and provided support as needed. Following the training, the 12-week intervention began. Participants met with their coach each week to determine whether they met their weekly step goal, determine their next goal, and schedule their exercise for the week. Following the 12 weeks, participants in both groups completed a measure of feasibility related to the Fitbit. Participants in the intervention group completed an adapted usage rating profile (CURP; Briesch & Chafoules, 2009). Coaches completed an adapted version of the Usage Rating Profile – Intervention Revised (URP-IR; Chafouleas et al., 2011) and a feasibility questionnaire regarding the acceptability of the intervention.

**Results:** Adults with ASD and ID in both groups reported high acceptability for using the Fitbit Flex 2 and the application to track step counts. Across the 12 weeks of the intervention, participants in the Fitbit + Coaching group had significantly higher average weekly step counts controlling for their baseline step counts than participants in the Fitbit Only Group, F (1,15) = 7.55, p = .01, η² = .34. Adults with ASD and ID in the Fitbit + Coaching group reported a high rating on the CURP (M = 3.5, SD = .36, Range =3.0 - 3.9, Max=4.00). The average rating for coach fidelity was 90.0%. Coaches reported high feasibility (Max=5) for the coach training (M = 4.5, SD = .25, range = 4.3 - 5.0), athlete training (M = 4.4, SD = .52, Range = 3.5 - 5.0), and the overall project (M = 4.5, SD = .25, range = 4.2 - 4.8). On the URP-IR (Max=6), coaches reported high acceptability (M = 5.13, SD = .48, range = 4.5 - 5.9), understanding of intervention materials (M = 5.21, SD = .53, range = 4.7 - 6.0), collaboration between home and community (M = 4.7, SD = .67, range = 4.0 - 5.7), feasibility (M = 5.06, SD = .50, range = 4.3 - 5.8), system climate (M = 5.1, SD = .51, range = 4.2-5.6), and systems support (M = 4.7, SD = .25, range = 4.3 - 5.0).

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Discussion: These preliminary results provide some initial support for exercise programs that incorporate parents or community members as coaches to promote self-management strategies in increasing exercise in adults with ASD and ID. Coaching support provided with a fitness tracker improved physical activity outcomes above and beyond the use of the fitness tracker by itself. The high ratings of feasibility and acceptability from both participants and coaches suggest that web-based training is a promising approach to implement interventions in community settings in adulthood. These findings add to the limited literature on promotion of evidence-based practices in adults with ASD and ID.

References/Citations: