Symposium Title: Adolescents with Autism in Secondary School Programs

Chair: Samuel L. Odom, University of North Carolina at Chapel Hill

Discussant: Julie L. Taylor, Vanderbilt University

Overview: The purpose of this panel is to present the initial results of a cross-site program of research focusing on adolescents with autism spectrum disorder attending high school programs. Although with the rapid increase in prevalence has come an acceleration in intervention research, most of the research has been at early childhood and elementary-school level (Wong et al., 2015). Similarly, studies of older individuals with ASD have tended to be follow-up and longitudinal studies of post-school adults with ASD (Taylor & Mailick, 2010). To fill this knowledge gap, the Center on Secondary Education for Students with ASD (CSESA) conducted a randomized clinical trial (just completed) involving 60 high schools for a two-year period. Five hundred forty-six students with ASD, their families, and school staff participated in the study. A comprehensive set of student assessments as well as assessments of the program environment were conducted at the beginning of the study and at the end of a two-year period. To our knowledge, this is the largest study with the most diverse sample of adolescents with ASD to be conducted in high school programs. In this panel, we will draw from the initial pretest assessments to address questions related to patterns of school services and student engagement and the phenotypic characteristics of high school students with ASD. In addition, we will report the RCT results of the CSESA program’s impact on the quality of the school program environment.

Paper 1 of 3

Paper Title: Social and Vocational Activities of High School Students with ASD

Authors: Leann Smith DaWalt, Bonnie Kraemer, Samuel L. Odom, Jessica Dykstra Steinbrenner, Kara Hume

Introduction: Much of the prior research focused on understanding the transition to adulthood for individuals with ASD has utilized clinically-referred, predominately White samples, thus limiting generalizability. The present study addressed this gap by examining participation in social and vocational activities of adolescents with ASD in a large, national sample of diverse high school students with ASD, just noted. There are two primary objectives: (1) describe the social and vocational experiences of adolescents with ASD using parent and teacher reports and (2) examine differences in patterns between students on a standard diploma track vs other diploma types (e.g., modified diploma).

Methods: Data for the present study were drawn from the baseline of the randomized control trial (RCT) of the CSESA comprehensive intervention model for high school students with ASD. This ongoing RCT includes 546 adolescents with ASD (57.2% standard diploma, 42.8% other diploma) who were receiving special education services from 60 high schools in three states (WI, NC, and CA). Students were enrolled in the study if they met the following inclusion criteria: a) were between 13-22 years old, b) had an educational classification of an ASD, and c) had a caregiver consent in English or Spanish. The majority of teens were male (86.5%) and 43% of teens were from minority families (race other than white or white-hispanic). Data collection involved direct testing of students and completion of questionnaires by parents and teachers regarding social and vocational activities.

Results: Based on parental report, approximately half of students with ASD had spent time with friends outside of school (50.1%), had social interaction with others on the internet (54.7%), and had called or texted friends (46.7%). Organized social activities were more common, with almost two thirds of teens spending social time with friends in an organized group (74.6%). Teacher report of socialization indicated that 85.5% of teens had social interactions with peers during the school day in the past two weeks. Vocational activities were less frequent based on both parent and teacher report, with less than 10% of teens engaging in jobs outside of school (8.8% parent report; 4.3 teacher report). One third of students engaged in jobs around school based on parent report (33.9%), whereas almost half of students engage in jobs around school based on teacher report (46.8%).
Analysis of variance findings indicated that standard diploma students (i.e., students primarily included in classes with other neurotypical peers) engaged in more frequent calling/texting ($F=10.83$, $p=.001$) and interacting on the internet ($F=36.69$, $p=.001$) than those on an alternative diploma. However, there were no differences in frequency of participation in organized activities, spending time in person with friends outside of school, or interacting with peers during the school day between the two groups. Although there were no differences between the groups in terms of paid employment in the community, students on an alternative diploma track were more likely than standard diploma students to engage in jobs around the school according to both parent and teacher report.

Discussion: Although only half of adolescents in the sample interacted with friends outside of school, interactions with peers during school were more common. The pattern of in-person social interactions was similar for students with ASD regardless of diploma type. Very few adolescents engaged in vocational activities in community settings (less than 10%), but at least one third engaged in jobs around school. Notably, school jobs were less common for students on a standard diploma track. Implications for differentiated social and vocational programming for teens and young adults across the spectrum will be discussed.

References/Citations: (None provided)

Paper Title: Examining Phenotypic Profiles of Adolescents with Autism in High School Programs

Authors: Brianne Tomaszewski, Samuel Odom, John Sideris, Leann Smith DaWalt, Bonnie Kraemer, Laura Hall, Kara Hume

Introduction: Individuals with Autism Spectrum Disorder (ASD) demonstrate substantial heterogeneity across intellectual functioning and autism symptoms. There is emerging evidence for distinct subtypes across the behavioral phenotype in young children and adults with ASD (Georiades et al., 2014; Taylor & Selzer, 2010; Woodman, Smith, Greenburg, & Mailick, 2016). Examining phenotypic variability during adolescence may increase our understanding of how the heterogeneity may influence outcomes in later life. The current study identified subgroups of cognitive functioning, autism symptoms, self-determination, and supports intensity in a large, diverse sample of adolescents with ASD.

Methods: Participants included adolescents with ASD (N = 414 for whom complete data were available) who were part of the larger RCT of the CSESA comprehensive treatment model for high school students with ASD (mean chronological age=16.2 years SD=1.44 years, range=14-21 years). The current study utilizes pretest data collected prior to the start of the intervention. Non-verbal intelligence and cognitive abilities were assessed using the Leiter International Performance Scale, Third Edition (Leiter-3). Adolescents with ASD, parents, and teachers completed the AIR-Self Determination Scale (SDS) to assess the student’s abilities to set goals, make choices, express needs, and put plans in to place, as well as their opportunities at school and at home. Parents and teachers completed the Supports Intensity Scale (SIS) to identify the supports the adolescent needs in their daily living skills. Parents also completed the Social Responsiveness Scale as a measure of autism symptoms (SRS).

Results: A latent profile analysis was conducted to identify subgroups of participants across cognition (Leiter-3), self-determination (SDS), supports (SIS), and autism symptoms (SRS). Fit criteria statistics were assessed for two to four profile solutions including: the Akaike Information Criterion (AIC), the Bayesian Information Criterion (BIC), Entropy, a Lo-Mendell-Rubin (LMR), and Bootstrap Likelihood Ration Test (BLRT). Based on the fit indices, a three-group model was the best fit. Group 1 (N=168) included individuals with high self-determination and cognitive functioning and low supports intensity and autism symptoms. Group 2 (N=168) included individuals with average self-determination, cognitive functioning, supports intensity, and autism symptoms. Group 3 (N=76) included individuals with low self-determination and low cognitive functioning and high supports intensity and autism symptoms.

Discussion: These results suggest that for adolescents with ASD (in this sample) three distinct profiles are apparent. These profiles consisted of associated cognitive functioning, autism symptoms, self-determination, and supports intensity, which
extends beyond often descriptive dichotomous classifications of individuals with and without disabilities. The next step in this research will be to examine the association of LPA classification with treatment outcomes (i.e., does it serve as a moderator).

References/Citations: (None provided)

Paper Title: Impact of a School-based Comprehensive Treatment Model for Adolescents with ASD on Program Quality in High Schools

Authors: Samuel L. Odom, Kara Hume, Leann Smith DaWalt, Laura Hall, and Bonnie Kraemer

Introduction: The increased prevalence of autism in public schools has intensified the need for providing high quality programs for youth with autism in school-settings. In fact, the program quality serves as the basis upon which effective instruction and intervention may be implemented (Odom et al., 2014). Yet, to date, there has not been a comprehensive treatment model that focuses building the quality of high school program for students with ASD. Researcher designed the CSESA model to promote the quality of the high school program environment for adolescents with ASD in public high schools. The purpose of this study was to examine the efficacy of the CSESA CTM on quality of the program environment for students with ASD.

Methods: In this RCT, 60 high schools in NC, WI, and CA were randomly assigned to the CSESA or Services As Usual (SAU) conditions. For the CSESA condition, autism teams in high school implemented the CSESA CTM, which consisted of development of goals for students and employing four program features focusing on academics, social competence, independence, and transition/families. In addition, staff in the CSESA schools developed a program plan to improve program quality and were provided with coaching for implementation by research staff. The dependent measure in this study was the Autism Program Environment Rating Scale—Middle/High School (APERS-MH). The APERS is a 66-item, 5-point Likert rating scale that consists of 11 domains. It generates a total score and scores for each domain. After observing in schools and interviewing teachers, trained raters completed the scale at the begin of the RCT (in the fall of the year) and at the end of the second year. The APERS generates a total score and composite scores for each of the CSESA program features.

Results: Analyses of the internal consistency of the APERS yield a high alpha for total score (.95) and moderate alphas for individual domains (.60-.80). Inter-rater agreement was conducted on 20% of the sample, yield adequate agreement and similar total scores for both raters. Confirmatory factor analyses indicated that all domains loaded on a single factor (Odom et al., in press). To determine efficacy, an analysis of covariance yielded adjusted post test scores, which were compared, with the mean item rating for total score and each of the composite scores being significantly higher for the CSESA schools as compared to the SAU schools (p < .01). Effect sizes (Cohen d) were .99 for total score, .72 for academics, .69 for independence, 1.32 for social competence, and .83 for transition/family.

Discussion: Program quality is essential for providing the foundation for effective programs for students with ASD. This study contributes to the literature by demonstrating that efficacy of the CSESA model for promoting quality of schools enrolling adolescents with ASD. The relevance of the study was enhanced by its implementation in three regional sites, involvement of 60 high schools, the racial, cultural, and linguistic diversity of the sample, and the authentic school contexts in which it was implemented. The next step in this program of research will be to examine the impact of enhanced program quality on the implementation of program features of the CSESA model and the impact on student outcomes.

References/Citations: (None provided)