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What Happens Next? Follow-Up From the Children's Toddler School Program

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Abstract

This study was a follow-up of a group of 29 children diagnosed with autism spectrum disorders at age 2 who attended an inclusive toddler program until age 3. Children ranged in age from 4 to 12 years at the time of the parent survey and follow-up testing. The majority of children were placed in a special education (noninclusive) preschool class, but among the children who were in elementary school at the time of follow-up, 63% were in general education classroom placement. Diagnoses of autism spectrum disorders remained stable, socialization skills remained a weakness, and child-related parental stress remained high despite average cognitive and language skills in the majority of children. Social skill development and support remained a service need.

Keywords

autism spectrum disorders; longitudinal; early intervention

An increasing number of children with autism spectrum disorders (ASDs) are now diagnosed before their third birthdays, and research studies have demonstrated that intensive early behavioral intervention results in improvements for a large proportion of young children with ASDs (Cohen, Amerine-Dickens, & Smith, 2006; Howard, Sparkman, Cohen, Green, & Stanislaw, 2005; National Research Council, 2001; Rogers & Vismara, 2008). In a study of 20 children with ASDs who completed a community-based inclusion program for toddlers, Stahmer and Ingersoll (2004) reported on outcomes at 36 months of age. In terms of overall IQ, 37% of the children were functioning in the average range (IQ between 85 and 115), compared with 11% at intake. These IQ gains were similar to those reported in research studies of young children with ASDs in both intensive one-to-one treatment programs (Anderson, Avery, DiPietro, & Edwards, 1987; Cohen et al., 2006; McEachin, Smith, & Lovaas, 1993) and inclusion programs (Boulware, Schwartz, Sandall, & McBride, 2006; McGee, Morrier, & Daly, 1999). The toddlers with ASDs also showed significant improvements in communication (80% left the program with spoken language), social interaction, adaptive behavior, and play skills.

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Eventual placement in general education classes is often a targeted outcome following early intervention. Two studies examining the relationship between educational placement and individual characteristics for children with ASDs suggested that cognitive and communication skills, not level of social deficit, are associated with educational placement (Eaves & Ho, 1997; White, Scahill, Klin, Koenig, & Volkmar, 2007). Boulware et al. (2006) followed 8 toddlers from their Project DATA inclusive toddler program and found that half of the children were enrolled in general education classes in elementary school (3 of these children had some support). Harris and Handleman (2000) found that among the 13 children who entered their group treatment program before 48 months, 77% were in inclusive, general education settings 4 to 6 years later. Cohen et al. (2006) followed children who began receiving an early intensive behavioral intervention prior to 48 months of age. After 3 years of the program, 48% of children were enrolled in general education with little to no additional support, and another 33% were enrolled in general education with full-time aides. Two of these three follow-up studies included inclusion programs, and none was a community sample.

Despite the benefits of early intervention, having a child with ASD brings many challenges to families before, during, and after participation in early intervention. Parents of children with ASDs experience significantly more stress than parents of typically developing children and children with other chronic disabilities (Abbeduto et al., 2004; Baker, Blacher, Crnic, & Edelbrock, 2002; Baker-Ericzén, Brookman-Frazee, & Stahmer, 2005; Bouma & Schweitzer, 1990; Kasari & Sigman, 1997). This increased stress is found across parents of children with different levels of cognitive and adaptive behavior functioning (Bromley, Hare, Davison, & Emerson, 2004; Hassall, Rose, & McDonald, 2005; Kasari & Sigman, 1997). Behavior problems and other child characteristics associated with ASDs are significant contributors to parents' "perceived negative impact", meaning their perceived negative financial, social, emotional, and physical burdens (Baker et al., 2002; Bishop, Richler, Cain, & Lord, 2007; Lecavalier, Leone, & Wiltz, 2006; Tomanik, Harris, & Hawkins, 2004). Impairment in children's language and cognitive abilities are also known stressors, and many parents express concerns about the adaptability of their children (Bebko, Konstantareas, & Springer, 1987; Koegel, Schreibman, Loos, & Dirlich-Wilhelm, 1992). Two studies suggested that effective interventions decreased child-related parent stress in autism (Baker-Ericzén et al., 2005; Koegel, Bimbela, & Schreibman, 1996), while another study reported steady levels of parental stress despite successful intervention (Aldred, Green, & Adams, 2004).

The goal of the present study was to examine the long-term outcomes of a group of children who were diagnosed with ASDs at age 2 and who had attended a community, inclusive early intervention program (the Children's Toddler School [CTS] Program) until age 3. We examined child level of functioning and service utilization, classroom placement, and parent stress across time. A matched control group was not available for comparison, so these results represent the first step in understanding the gains associated with participating in a community-based early intervention inclusive program for children with ASDs.

Method

Participants

Participants were recruited from CTS (Stahmer & Ingersoll, 2004). Eligibility for CTS entry included a *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition (*DSM-IV*), diagnosis (American Psychiatric Association, 2000) of Autistic Disorder or Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS) by a community-based clinician not associated with this research project, nonverbal mental age of at least 12 months, and chronological age 18 to 30 months. Funding for CTS was provided by the

California Part C Early Start program, which requires children to exit the program at age 3. All families signed an institutional review board consent form stating a willingness to be contacted about future studies. Study eligibility included having signed this consent form prior to leaving the program, entry to the program prior to age 32 months, participation in the CTS Program for a minimum of 5 months, and exit from CTS at least 6 months prior to study initiation.

Fifty-seven families met the eligibility criteria and were mailed a study packet; 29 families agreed to participate and returned the study packet (51% of the total sample). Of the 28 families that did not return the packet by mail, 12 families were contacted by phone but did not return the packet. Current contact information was unavailable for the remaining 16 families. Table 1 shows the characteristics of the 29 families that responded and the 28 families that did not in terms of age of children at the time of the survey, number of months in the program, child test scores, and *Parenting Stress Index* (PSI) scores at the time of CTS exit. Independent-samples t tests revealed no significant group differences between the survey responders and nonresponders (p values > .05). The children of the nonresponders tended to be lower functioning, and the parents tended to report slightly higher child-related stress.

Twenty-five parents (86.2%) reported about male children and 4 (14.3%) about female children; 23 were Caucasian, 2 were Asian, 2 were Hispanic, and 2 were African American. The mean child age at the time of CTS entry assessment was 28 months (*SD* = 2.7 months), and the mean age was 35 months (*SD* = 1.1 month) at the time of CTS exit assessment. The mean child age at the time of the survey was 7 years (*SD* = 2.3 years). Children had participated in the program for an average of 7.7 months (*SD* = 2.2 months) and had left the program from 1.1 to 8.4 years prior (*M* = 4 years, *SD* = 2.3 years) to follow-up assessments. Follow-up diagnostic testing was completed with 20 of these children (age range = 4.4 to 12.2 years of age, 18 boys and 2 girls).

Measures and Procedure

Intervention—CTS includes eight toddlers with ASDs: four who attend a morning session and four who attend an afternoon session. The program consists of a total of 21 hours a week of direct service (3 hours in the classroom, 1 hour outside the classroom, and 2 hours of in-home parent education). In addition, parents commit to using the techniques learned in parent education an additional 10 hours per week at home (although we do not have way to verify the use of these hours). Children receive intensive services in the inclusive classroom 3 hours a day, 5 days a week. The eight typically developing toddlers each attend all day for day care purposes. The classroom has a 1:3 teacher-to-child ratio, is arranged like a typical toddler classroom, and uses a systematic blend of incidental teaching (McGee et al., 1999), pivotal response training (Koegel et al., 1989), structured teaching (Lord, Bristol, & Schopler, 1993), the picture exchange communication system (Bondy & Frost, 1994, 2001), and DIR/Floortime (Greenspan, Wieder, & Simons, 1998) in the context of the classroom. Interaction with typically developing toddlers is facilitated throughout the school day. Each toddler with ASD receives individualized instruction, which may include discrete trial training (Lovaas, 1987), with one teacher and two children, for an additional 4 hours weekly to allow for teaching specific skills not acquired in the classroom setting or that need additional practice. The family education component consists of weekly 2-hour home visits with a teacher to help parents learn the naturalistic behavioral techniques. Speech and occupational therapy consultation is conducted within the context of the classroom. A more detailed description of the program can be found in Stahmer and Ingersoll (2004).

Parent report measures—The *Vineland Adaptive Behavior Scales* (VABS; Sparrow, Balla, & Cicchetti, 1984) were administered at CTS entry and exit. The VABS were missing for one of the parents at exit. The VABS-II (Sparrow, Cicchetti, & Balla, 2005) were administered at follow-up.

The PSI (Abidin, 1995) is a screening and diagnostic instrument that measures the magnitude of parent stress. The Child Domain subscales measure stress associated with parents' perceptions of various child behaviors and characteristics. The Parent Domain subscales measure stress related to personal adjustment and family functioning. Scores above the 75th percentile signify clinically elevated stress and are cause for concern (Abidin, 1995). The PSI was completed by parents at CTS entry, exit, and follow-up and was missing for three parents at CTS exit.

The *CTS Follow-Up Questionnaire* was developed for this study to obtain data on current classroom placement and treatment services at school and outside (e.g., speech and language, occupational therapy) and was administered at follow-up.

Child assessment measures—IQ scores at entry and exit were obtained using the same measure. Sixteen children received the *Bayley Scales of Infant Development–Second Edition* (BSID-II; Bayley, 1993), and 13 received the *Mullen Scales of Early Learning* (Mullen, 1995). For those children who received the BSID-II, ratio verbal and nonverbal IQ scores were calculated by taking the average mental age equivalent for the three highest items passed on the language items or nonverbal items and dividing each of these by the child's chronological age and then multiplying by 100 (Stahmer & Ingersoll, 2004). For those who received the Mullen instrument, ratio verbal and nonverbal IQ scores were calculated from the average of the age-equivalent scores from the receptive and expressive language scales, and the visual reception and fine motor scales, and dividing each of these by the child's chronological age and then multiplying by 100 (Lord et al., 2006).

The *Differential Ability Scales* (DAS; Elliott, 1990) were administered to children at follow-up. The Preschool version of the DAS was administered to 14 children, and the School-age version was administered to 6 children. For the School-age DAS, a standardized nonverbal composite IQ score (in lieu of separate nonverbal reasoning and spatial scores) was derived from the four nonverbal subtests. Because the raw scores for 5 children fell below the standard ranges for age, ratio IQs were calculated separately for verbal and nonverbal subtests.

Standardized diagnostic measures—The *Autism Diagnostic Interview–Revised* (ADI-R; Rutter, Le Couteur, & Lord, 2003) and the *Autism Diagnostic Observation Schedule* (ADOS; Lord, Rutter, DiLavore, & Risi, 2001) were administered at follow-up. Both are standardized diagnostic measures that have demonstrated good reliability and validity and contain items for rating communication, reciprocal social interaction, and restricted and repetitive behaviors, with separate cutoff scores for each symptom domain. These assessments were not used at CTS entry or exit.

CTS entry and exit assessment procedures—The program psychologist evaluated each child within 1 month of program entry and again within 1 month of exit. Entry and exit diagnoses were confirmed by a licensed clinical psychologist through observation, assessment results, results from the *Gilliam Autism Rating Scales* (Gilliam, 1995), and *DSM-IV* criteria (American Psychiatric Association, 2000).

Follow-up study procedures—The study packets contained a letter explaining the study, the PSI, the *CTS Follow-Up Questionnaire*, and a consent form (approved by the

Human Research Protections Program at the University of California, San Diego, and Rady Children's Hospital San Diego). A testing request form was also included, with instructions to return the form if parents were interested in having their children assessed directly as part of this study. The nine families that returned the packets but did not return for testing indicated that they were currently living out of state or that their schedules did not permit scheduling the two follow-up visits.

All follow-up diagnostic evaluations were completed by two licensed clinical psychologists who were not familiar with the children at the time of CTS participation. A best estimate clinical diagnosis was achieved for each child using all available clinical, historical, and assessment data to determine a *DSM-IV* diagnosis.

Results

Changes in Standardized Assessment Scores Over Time

Table 2 shows the standardized assessment results across the three time points for the 20 participants who participated in follow up testing. Analyses of covariance (with time since exit from the program as the covariate) revealed that there were significant differences in nonverbal IQ, $F(1, 18) = 4.86$, $p = .04$, $\eta_P^2 = .21$, and verbal IQ, $F(1, 18) = 18.07$, $p < .0001$, $\eta_P^2 = .50$, across time. Planned paired *t* tests revealed significant gains in nonverbal and verbal IQ from entry to exit. A significant gain in verbal IQ was also found from exit to follow-up.

Only 4 children (20%) had average (>85) nonverbal IQ scores at entry, while 11 (55%) had average nonverbal IQ scores at exit. At follow-up, 15 children (75%) had average nonverbal IQ scores on the DAS. At entry, no child had an average verbal IQ score, while 7 children (35%) had average verbal IQ scores at exit. At follow-up, 13 children (65%) had average verbal IQ scores on the DAS.

There were significant differences in VABS Communication, $F(1, 18) = 10.8$, $p = .004$, $\eta_P^2 = .38$) and Daily Living Skills, $F(1, 18) = 13.02$, $p = .002$, $\eta_P^2 = .42$, standard scores across time. Planned paired *t* tests revealed significant gains in VABS Communication scores from entry to exit and from exit to follow-up and a significant gain in VABS Daily Living Skills scores from exit to follow-up. At entry, only 2 children (10%) had average (>85) VABS Communications score, and only 3 children (15%) had average scores at exit. At follow-up, 13 children (65%) had average VABS Communication scores. There were no significant differences in VABS Socialization scores across the three time points, $F(1, 18) = 1.77$, $\eta_P^2 = .09$. One of the children (5%) had an average score at entry, 5 children (25%) at exit, and 2 children (10%) at follow-up. None of the children had VABS Daily Living Skills score in the average range at entry and only 1 child (5%) at exit. At follow-up, 9 children (45%) had average VABS Daily Living Skills scores.

Diagnostic Classification

At the time of exit from CTS, 10 children had clinical diagnoses of Autistic Disorder, 9 had clinical diagnoses of PDD-NOS, and 1 child was not given an ASD diagnosis but was described as having “autistic features.” At the time of follow-up, 12 of these children met criteria for Autistic Disorder, 6 met criteria for PDD-NOS, and 2 were not given ASD diagnoses. One of these had been given a clinical diagnosis of PDD-NOS at the time of CTS exit. At the time of follow-up, this child was given a diagnosis of developmental language disorder with features of attention-deficit/hyperactivity disorder. The other child had been described as having autistic features at exit and did not qualify for special education preschool services, despite indications of autism at age 2. Diagnoses therefore remained consistent for 70% of the children from exit to follow-up, with the most common change being from a diagnosis of PDD-NOS to one of Autistic Disorder.

Parental Stress

Table 3 shows the means for the PSI measures at the three time points. Analyses of covariance (with time since exit from the program as the covariate) revealed no significant changes in Child Domain percentile scores, $F(1, 25) = .05$, or Parent Domain percentile scores, $F(1, 25) = .01$, across the three time points. Accordingly, there were significant partial correlations between Parent Domain scores at entry and exit ($r = .68$, $p = .0001$) and exit and follow-up ($r = .69$, $p = .0001$). There were also significant partial correlations between PSI Child Domain scores at entry and exit ($r = .86$, $p = .0001$) and at exit and follow-up ($r = .39$, $p = .05$). The majority of parents obtained clinically significant PSI Child Domain scores at entry, exit, and follow-up. In contrast, Parent Domain scores were relatively low at entry, exit, and follow-up. Child Domain and Parent Domain scores were significantly correlated with each other at entry ($r = .56$, $p = .002$), exit ($r = .65$, $p = .0001$), and follow-up ($r = .65$, $p = .0001$).

At follow-up, overall PSI Parent Domain scores were not significantly correlated with any of the DAS, VABS-II, ADOS, or ADI-R variables (Table 4). PSI Child Domain scores were significantly correlated with ADI-R Social and Communication scores (Table 4). These results suggest that for this group of children, the PSI Child Domain score reflects the social and communication difficulties observed by parents.

School Placement

Upon exit from CTS, the vast majority of children ($n = 16$ [55%]) attended a segregated special education preschool program. Eight children (28%) attended special education preschool classes in which typically developing peers were included in the classroom (“reverse mainstream”), and the remaining 5 children (17%) attended preschool in a private setting with typical peers. At the time of the survey, 10 of the 29 children were in preschool. Among the 19 who were in elementary school (kindergarten through sixth grade), 12 (63%) were enrolled in general education classrooms.

Service Use

Table 5 shows the use of different service types across the 29 participants. The number of school services received per child ranged from 0 to 4 ($M = 2.1$, $SD = 1.6$). The number of outside services ranged from 0 to 5 ($M = 1.62$, $SD = 2.0$). These were paid for by public agencies, private health insurance, and/or the family. The number of school services was significantly correlated with the number of outside services ($r = .64$, $p = .0001$). For the 7 children in a general education elementary school classroom with support, all received speech and occupational therapy, 3 received adaptive physical education, 3 attended a social skills group, 4 had assistance from a classroom aide (part- or full-time), and 2 spent part of the school day in a resource classroom.

At follow-up ($n = 20$), the number of school services was significantly negatively correlated with nonverbal IQ ($r = -.52$, $p = .02$), indicating that children with lower nonverbal IQs received more special education services in school. In addition, the number of school services was significantly negatively correlated with VABS-II Socialization scores ($r = -.48$, $p = .03$) and positively correlated with ADI-R Socialization ($r = .62$, $p = .004$), ADI-R Communication ($r =. 50$, $p = .03$), and PSI Child Domain ($r = .44$, $p = .02$) scores. The number of outside services was also significantly negatively correlated with VABS-II Socialization scores ($r = -.45$, $p = .04$) and positively correlated with ADI-R Socialization ($r = .61$, $p = .004$), ADI-R Communication ($r = .62$, $p = .004$), ADOS Communication ($r = .56$,

$p = .01$), ADOS Socialization ($r = .46$, $p = .04$), and PSI Child Domain ($r = .46$, $p = .01$) scores. These results indicate that children with more severe autism symptomatology (as measured by the ADOS, ADI-R, and PSI Child Domain) received more services in school and outside of school.

Discussion

This is one of the few examinations of longitudinal outcomes in a community sample of children with ASDs. Examination of changes in standard scores over time revealed that initial gains in these scores continued after the children left the toddler program. This is hopeful given than the children attended a variety of public programs after age 3, and skills were maintained or improved in these community programs. The generally positive findings from this study may be specific to children identified at age 2 who have nonverbal mental age equivalents of at least 12 months at the time of early intervention and therefore may not necessarily be representative of all children with ASDs receiving treatment prior to age 3.

All but one of the children in general education (with or without support) who participated in follow-up diagnostic testing met criteria for autism or ASD on both the ADI-R and the ADOS. This demonstrates diagnostic stability despite mainstream academic placement.

The majority of children from CTS were placed in segregated special education preschool programs at CTS exit, regardless of levels of functioning. This may be due to the options offered in the local service system. Local school districts typically only offer segregated special education preschool programs for children with disabilities, and therefore preschoolers with ASDs attend these programs for more intensive services and to help facilitate school readiness. Although some schools offer some interaction with typically developing peers, most are segregated. Schools are often reluctant to provide services in local typical preschool programs because of the cost and limited procedural control, so parents must often choose between more intensive special education programming and inclusive programming with limited services during the preschool years. Enrollment in special education preschool did not appear to inhibit later placement in general education, and children's early progress remained stable or improved while in these programs.

School placement in elementary school did appear to be strongly related to cognitive and communication skills, rather than diagnosis or socialization, suggesting an emphasis on children's individual learning needs and perhaps less focus on social skill deficits. Children on average received four types of different services (in school and outside school). This is comparable with the number reported in previous parent surveys (Goin-Kochel, Myers, & Macintosh, 2007; Green et al., 2006; Thomas, Morrissey, & McLaurin, 2007). Future studies should include assessments of behavioral functioning completed by parents and teachers, as well as more specific information regarding the intensity and type of support services to better examine placement and service issues.

PSI Child Domain scores were typically elevated at exit from CTS and remained elevated across children at the time of follow-up, despite participation in intensive early intervention and despite the relatively good outcomes in this sample of children. When the PSI Child Domain score is elevated relative to the Parent Domain score, it is likely that child characteristics are major factors contributing to the overall stress in the parent-child system (Abidin, 1995). Similar to previous studies, children's cognitive functioning and adaptive skills were not significantly associated with parental reports of child-related stress. We found that ADI-R Social and Communication scores were significantly correlated with PSI Child Domain scores. It appears that the child behavior problems included in the PSI Child

Domain are particularly relevant for children with ASDs and remain fairly consistent problems across time.

The lack of change seen in the VABS Socialization scores and continued symptomatology evidenced on the ADOS and ADI-R are additional indicators that improvements in intellectual and adaptive functioning and placement in general education classrooms may not provide a complete picture of the ongoing difficulties higher functioning children with ASDs face as they reach elementary school (Klin et al., 2007; Saulnier & Klin, 2007). Very few evidence-based practices are available for elementary school children with autism, particularly high-functioning children. It is unclear how to best support the continued growth of social skills, as well as cognitive and communication skills, as children with ASDs mature. Anecdotally, several parents reported difficulties with developing friendships and bullying in their high-functioning children and experienced parental anxiety over future relationship development and independent functioning.

Ongoing parent education may be helpful in improving social and communication skills. The CTS Program includes a parent education component. A similar community parent education program offered at the center has been shown to led to improvements in communication and adaptive behavior (Baker-Ericzén, Stahmer, & Burns, 2007; Stahmer & Gist, 2001). However, it is not known how many parents continue to practice these techniques as their children go on to preschool and elementary school. In addition, the level of parent education available in public school programs may be limited (Stahmer, 2007). It is possible that parents could benefit from booster sessions as their children mature and their social and communication skill needs change from when they were toddlers.

Effective social interventions that have an impact on the core deficits in social engagement in ASD have remained elusive and need to be addressed. However, it is often unclear which service system should address social issues. Schools may not place a high priority on adaptive skill instruction, including social abilities and disabilities, for students who are making adequate academic progress. Mental health systems often categorize autism as a developmental disability and may have inadequate experience with the specific needs of high-functioning children with ASDs. Future research must include assessments of social functioning when evaluating outcomes and examine methods for improving social engagement in ASD throughout the life span. Standardized assessment of the characteristics of autism by experienced evaluators, which is the standard for diagnostic stability studies, should also be the standard for follow-up treatment studies. Adaptive skill instruction, particularly social engagement, remains an important priority to address across the life spans of these individuals (Klin et al., 2007; National Research Council, 2001).

In the absence of a control group, or a clear understanding of the specific services received once children exited CTS, it is not possible to adequately test the hypothesis that initial gains or maintenance of progress in cognitive and communication functioning in this group of children is due specifically to their participation in an early intervention inclusion program. Another limitation was our inability to contact many families. In the future, we will attempt to maintain closer contact over time. We hope to more directly investigate the benefits of inclusion programming for toddlers with ASDs in future prospective studies

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Table 1
Mean (*SD*) Characteristics of Survey Responders and Nonresponders

Variable	**Survey Responders (*n* = 29)**	**Survey Nonresponders (*n* = 28)**	**Cohen's *d***
Age at time of survey (years)	7.2 (2.4)	7.9 (2.0)	.3
Time in program (months)	7.4 (2.3)	8.7 (3.1)	.5
CTS exit results			
Overall IQ	79.2 (20)	72.2 (18.9)	.4
VABS Communication	78.5 (13.9)	75.22 (11.3)	.3
VABS Socialization	77.6 (12)	73 (9.2)	.4
VABS Daily Living Skills	71.2 (8.1)	69.6 (5.7)	.2
PSI Parent Domain percentile score	43.6 (32.1)	49.7 (29.9)	.2
PSI Child Domain percentile score	61.8 (35)	76.8 (25.5)	.5

Note: IQ was based on overall *Bayley Scales of Infant Development–Second Edition* Mental Development Index score or *Mullen Scales of Early Learning* Composite score. CTS = Children's Toddler School; VABS = *Vineland Adaptive Behavior Scales*; PSI = *Parenting Stress Index*.

Table 2

Mean (*SD*) Child Characteristics at Time of CTS Entry, CTS Exit, and Follow-Up

Variable	CTS Entry	CTS Exit	Follow-Up
Age in months	28.9 (2.7)	35 (1.3)	85.3 (27.8)
Verbal IQ	47.2 (15.2)	72.9 (24.7)	83.8 (28.3)
Nonverbal IQ	70.4 (14.6)	85 (15.8)	88.2 (24.4)
VABS Communication	70.9 (10.1)	76.6 (12.9)	84 (16.6)
VABS Socialization	71.5 (8.7)	76.8 (11.7)	73.7 (13.9)
VABS Daily Living Skills	68.8 (6.8)	70.6 (8.1)	81.1 (16.3)
ADOS Social	—	—	7.4 (3.0)
ADOS Communication	—	—	3.6 (2.2)
ADI-R Social	—	—	15.0 (7.4)
ADI-R Communication	—	—	14.1 (5.0)
ADI-R Repetitive Behaviors	—	—	7.8 (2.6)

Note: CTS = Children's Toddler School; VABS = *Vineland Adaptive Behavior Scales*; ADOS = *Autism Diagnostic Observation Schedule*; ADI-R = *Autism Diagnostic Interview–Revised*.

Table 3

Mean (*SD*) *Parenting Stress Index* Percentile Scores at Entry, Exit and Follow-Up

Variable	Entry	Exit	Follow-Up
Child Domain percentile	70.9 (28.5)	65.5 (33.6)	73.6 (29.4)
Parent Domain percentile	40.9 (28.7)	48.9 (33.1)	43.4 (31.8)
Parents with elevated Child Domain scores	65%	58%	69%
Parents with elevated Parent Domain scores	24%	23%	21%

Table 4

Correlations Between PSI Parent Domain and Child Domain Percentile Scores and Child Assessment Measures at Follow-Up ($n = 20$)

Variable	PSI Parent Domain	PSI Child Domain
DAS verbal IQ	−.35	−.19
DAS nonverbal IQ	−.25	−.26
VABS-II Communication	−.38	−.35
VABS-II Socialization	−.37	−.44
VABS-II Daily Living Skills	−.42	−.39
ADOS Social	.08	.13
ADOS Communication	.22	.11
ADI-R Social	.24	$.46^{*}$
ADI-R Communication	.05	$.57^{*}$
ADI-R Repetitive Behaviors	.17	.15

Note: *PSI* = Parenting Stress Index; DAS = *Differential Ability Scales*; VABS-II = *Vineland Adaptive Behavior Scales II*; ADOS = *Autism Diagnostic Observation Schedule*; ADI-R = *Autism Diagnostic Interview–Revised*.

$^{*}p < .05$.

Table 5

Percentage of Children (n = 29) Using Various Services at Follow-Up

Service	% Using in School	% Using Outside of School
Speech therapy	76	4
Occupational therapy	59	17
Adaptive physical education	31	0
Social skills	21	34
Respite care	0	31
Music therapy	7	1
Psychiatric services	0	17
Parent training	0	10
After-school recreation	7	0
Vision therapy	3	3
Equestrian therapy	0	3