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Many Young Children with Autism Who Use Psychotropic Medication Do Not Receive Behavior Therapy: A Multisite Case-Control Study

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Abstract

Objectives—To explore how many pre-school aged children with autism spectrum disorder (ASD) used psychotropic medication, child and geographic factors associated with psychotropic medication use, and how many children who used psychotropic medication did or did not ever receive behavior therapy.

Study design—Children 2–5 years of age were enrolled from 2012 to 2016 in a multisite case-control study designed to investigate the development and risk factors of ASD. Children with a positive ASD screen or ASD diagnosis upon enrollment were asked to complete a comprehensive evaluation to determine ASD status and developmental level. Caregivers completed a Services and Treatments Questionnaire and multiple self-administered questionnaires to determine child use of psychotropic medication, ever receipt of behavior therapy, and presence of co-occurring symptoms.

Results—There were 763 children who were classified as ASD and had data collected on the Services and Treatments Questionnaire. Of those, 62 (8.1%) used psychotropic medication to treat behavioral symptoms and 28 (3.7%) were 3 years of age when medication was first started. Attention problems (aOR, 7.65; 95% CI, 3.41–16.1; $P < .001$) and study site (aOR, 2.62; 95% CI, 1.04–6.56; $P = .04$) were significantly associated with psychotropic medication use after

controlling for maternal race/ethnicity. More than one-half (59.7%) of those who used psychotropic medication did not ever receive behavior therapy.

Conclusions—Many preschool-aged children with ASD who use psychotropic medication do not receive behavior therapy. Pediatricians are an important resource for children and families and can help facilitate behavioral treatment for children with ASD and other disorders.

There are currently no pharmacological treatments for the core symptoms of autism spectrum disorder (ASD), although children and adolescents with ASD are often prescribed psychotropic medication to treat co-occurring symptoms, such as aggression, anxiety, hyperactivity, and self-injurious behaviors.^{1–11} A number of psychotropic medications are used to decrease symptoms that cause significant impairment in academic or social functioning or create safety concerns for the child or others when response to behavioral therapies has been suboptimal.^{12–14} Multimodal intervention with behavioral and/or educational therapy is recommended even when psychotropic medication is prescribed for immediate stabilization of the child.¹⁵

Most psychotropic medications have not been tested and approved by the US Food and Drug Administration for very young children and efficacy in preschool samples has not been established.^{16,17} Prescription of these medications for children < 3 years is not generally considered acceptable practice unless behavior therapy is first attempted.¹⁸ Studies that have examined psychotropic medication use among preschool-aged children with ASD report that between 10% and 32% of 3- to 5-year-old children with ASD used psychotropic medication.^{6,19–21} For children < 3 years of age, between 1% and 18% were reported to use psychotropic medication. Psychotropic medication use has been associated with older age, study site, the presence of co-occurring developmental conditions, and psychiatric symptoms.^{6,19,20} Young children with ASD living in the Midwest or Southern US, and those with co-occurring attention deficit hyperactivity disorder (ADHD), tend to use psychotropic medications more than other than their similar-aged counterparts.^{19–21}

Behavior therapy has the most evidence for treatment effectiveness for children with ASD and, when administered in early childhood, can often alter developmental course and prognosis.^{7,22–24} Behavior therapy is effective in improving intellectual abilities, moderately to very effective in improving communication skills, and moderately effective in improving adaptive behavior (in total) and socialization.²⁵ Behavior therapy decreases the likelihood of problem behaviors, such as aggression, elopement, and self-injury.²⁶ Individuals with ASD who receive behavior therapy are more likely to no longer meet criteria for ASD when evaluated later in life.⁷ Behavior therapy not only addresses the core symptoms of ASD, but also the co-occurring features often targeted by psychotropic medication.^{24–30} Moreover, when psychotropic medications are used, they are most effective when used in combination with behavior therapy or parent training in behavioral techniques.^{31–33}

The primary objectives of this study were to explore, in a preschool-aged sample of children with ASD, how many were prescribed psychotropic medication, child and geographic factors associated with psychotropic medication use (independent of family and maternal factors), and how many children who used psychotropic medication had ever received behavior therapy. Based on previous research, we believed that study site and co-occurring

ADHD would be significantly associated with psychotropic medication use in our sample of children.

Methods

Participants were families who had children with ASD and completed a medication use section of a Services and Treatments Questionnaire (STQ) for the Study to Explore Early Development (SEED). SEED is a multisite, multiphased case-control study of preschool-aged children funded by the Centers for Disease Control and Prevention and designed to investigate the development and risk factors of ASD. Data for this analysis come from the second phase of SEED (SEED2), which included questions that specifically asked about child psychotropic medication use. SEED2 was conducted in communities in California, Colorado, Georgia, Maryland, North Carolina, and Pennsylvania. To be eligible for SEED2, a child had to be 2–5 years of age at the time of enrollment (2012–2016), have been born and reside in one of the study areas, and live with a knowledgeable caregiver who could communicate about the child in English or, in California and Colorado, English or Spanish. The SEED2 protocol was approved by Institutional Review Boards at the Centers for Disease Control and Prevention and each study site.

Enrollment for SEED2 focused on children with known ASD, those with a known other developmental delay or disability, and those from the general population. Children with known ASD and other developmental delay or disability were identified from multiple educational and health providers or by diagnostic codes found in service records. Those from the general population were identified from state birth certificate records. The families of potential participants were mailed information about the study, which included a response card to indicate interest in receiving more information. Schendel et al provide a detailed description of eligibility criteria, ascertainment methods, enrollment methods, and data collection procedures for the first phase of SEED which was similar for subsequent phases.

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Data Collection Procedures

Caregivers completed the Social Communication Questionnaire, a screening measure, when first enrolled to determine child ASD risk and subsequent assessment procedures.³⁵ Children's developmental level was assessed with the Mullen Scales of Early Learning (MSEL).³⁶ Families of children with a Social Communication Questionnaire score of 11 who had a previous ASD diagnosis or who demonstrated ASD behaviors during the MSEL were asked to have their child participate in the Autism Diagnostic Observation Schedule (ADOS), a standardized observation of the child, and caregivers were asked to complete the Autism Diagnostic Interview – Revised (ADI-R), a comprehensive caregiver interview.^{37–39} The ADI-R and ADOS are gold standard diagnostic instruments used to differentiate children with ASD from children with other developmental delay or disability.⁴⁰ The ADI-R also collects information on ASD symptoms and challenging behaviors, such as the endorsement of self-injurious behaviors included in these analyses. In addition to completing the ADI-R, mothers also completed a comprehensive maternal interview and numerous self-reported questionnaires.

Nondiagnostic Data Collection Instruments

The SEED Maternal Interview and Child Health History Form.—Caregiver responses on a comprehensive interview created for this study determined federal poverty level and maternal age, education, and race/ethnicity. Federal poverty level was defined as the following ratios of total household income before taxes in 12 months before the interview: 100%, 101%–200%, 201%–300%, 301%–399%, and 400%, with <100% representing below the poverty threshold. An upper bound method that assigns the highest value in each maternal interview category was used to create variables that most closely match the overall distribution of income (eg, the interview category \$10K–\$30K would be coded \$30K). Caregiver responses on a child health history form determined whether the child had both private and public insurance, private only insurance, public only insurance, or no insurance coverage.

The MSEL.—The MSEL is a standardized in-person evaluation of the early learning abilities of young children that assesses development in four areas of functioning: expressive language, receptive language, fine motor, and visual reception skills.³⁶ The MSEL yields an early learning composite score that has a mean of 100 ± 15 . Children with a MSEL early learning composite score of ≤ 70 are classified as having low developmental level.

Child Behavior Checklist/1½–5 Years.—Caregivers completed the Child Behavior Checklist to assess problem behaviors in the child.⁴¹ The Child Behavior Checklist is a widely used standardized instrument that measures child internalizing and externalizing symptoms including aggression, anxiety/depression, attention problems, emotional reactivity, and sleep problems. Child Behavior Checklist t-scores of ≥ 65 indicate borderline to clinically significant problems demonstrated by the child; this cut-off was used to define the presence or absence of problem behaviors.

Social Responsiveness Scale.—Caregivers completed the Social Responsiveness Scale (SRS) to determine moderate to severe levels of restricted interests and repetitive behaviors and total ASD symptoms in their child.⁴² The SRS is a standardized instrument designed to measure social abilities found to be impaired in persons with ASD. The SRS contains a total ASD symptom score and restricted interests and repetitive behaviors domain score. SRS scores of ≤ 66 represent moderate to severe deficits.

SEED2 STQ.—Child use of psychotropic medication and receipt of behavioral therapy was collected from a caregiver questionnaire designed for SEED2. Caregivers were asked if their child had been prescribed medication to treat behavioral symptoms. These medications were classified within 5 categories: (1) antidepressant or anti-anxiety, (2) atypical antipsychotic, (3) seizure medication (also used to stabilize mood), (4) stimulant used to treat inattention and hyperactivity, and (5) nonstimulant used to treat inattention and hyperactivity. Examples of medications within each of these categories were provided for the caregiver (eg, fluoxetine for the first category, risperidone for the second category, valproic acid for the third category, methylphenidate for the fourth category, and guanfacine for the fifth category). Caregivers also had the option of specifying other medications in an open-text field. A neurodevelopmental pediatrician and developmental psychologist reviewed these

responses and recoded a reported medication into 1 of the 5 analytic categories if appropriate (eg, methylphenidate was coded as a stimulant used to treat inattention and hyperactivity). Caregivers were also asked if their child ever received applied behavior analysis or any type of behavior modification therapy.

Study Classification

SEED2 ASD case status was based on the results of the ADOS and ADI-R rather than a previous diagnosis. Briefly, children classified as ASD were those who met ASD criteria on both the ADI-R and ADOS, or who met ASD criteria on the ADOS and one of 3 alternate criteria on the ADI-R (ie, met criteria on the social domain and was within 2 points on the communication domain, met criteria on the communication domain and was within 2 points on the social domain, or met criteria on the social domain and had 2 points noted on the behavioral domain). Details on the SEED final classification algorithm can be found in Wiggins et al.⁴³

Data Analyses

We first reported descriptive statistics on the proportion of children with ASD in SEED2 prescribed a psychotropic medication. We then examined variations in maternal demographic characteristics and type of insurance based on child psychotropic medication use to identify family and maternal variables to control in a logistic regression model. These variables were chosen as potential confounders based on previous research that identified associations between them and ASD status with use of psychotropic medications.^{6,19} Statistical differences were detected with χ^2 tests, and the Cramer V effect size estimates are reported as a measure of association.⁴⁴

We next examined child and geographic differences between children who did and did not use psychotropic medication to identify independent variables to include in a logistic regression model. Only those variables that produced significant between-group differences were subsequently examined, and a forward stepwise procedure was used to improve model parsimony. The aORs and 95% CIs are reported for variables significantly associated with child psychotropic medication use in the logistic regression model.

Finally, we reported descriptive statistics to show how many children with ASD who used psychotropic medication ever received behavior therapy, and treatment characteristics of children with ASD who used psychotropic medication.

Results

A total of 773 children were classified as ASD in SEED2 and, of those, 763 had data collected on the STQ and were included in analyses. There were 621 boys (80.4%) and 142 girls (18.6%) in the sample. Caregivers reported that 62 of the 763 children with ASD (8.1%) used a psychotropic medication to treat behavioral symptoms. Children who used psychotropic medication were older (mean, 59 months; range, 42–69 months) than those who did not use psychotropic medication at the time of the SEED2 clinic visit, mean, 55 months; range, 29–70 months, $F(1,761) = 12.8$; $P < .001$. There were no differences in federal poverty status, maternal age, or maternal education between children who used

psychotropic medication and those who did not use psychotropic medication (Table I). There were statistical differences in maternal race/ethnicity in that a greater proportion of Black non-Hispanic children and a lesser proportion of Hispanic children used psychotropic medication compared with those who did not use psychotropic medication.

Table II outlines the differences among children with ASD who did and did not use psychotropic medication. Children who used psychotropic medication had more self-injurious behaviors, aggressive behaviors, attention problems, sleep problems, restricted interests and repetitive behaviors, and total ASD symptoms than children who did not use psychotropic medication. They were also more likely to have a low developmental level and live in certain geographic areas compared with others (eg, among children who used medication compared with those who did not use medication, the proportion who lived in Georgia was greatest and the proportion who lived in Colorado was least). There were no statistical differences in child sex, anxious/depressed behavior, emotional reactivity, or insurance status between children with ASD who used psychotropic medication and those who did not use psychotropic medication.

Table III shows factors associated with psychotropic medication use controlling for maternal race/ethnicity using a forward stepwise procedure. California was chosen as the referent site in the logistic regression model because California had a similar percentage of children with ASD who used psychotropic medication as the mean value for all sites. Results found that attention problems and study site were significantly associated with psychotropic medication use. Specifically, children with attention problems had 7.65 times the odds (95% CI, 3.41, 16.1; $P < .001$) of using psychotropic medication than those without attention problems, and children living in Georgia had 2.62 times the odds (95% CI, 1.04–6.56; $P = .04$) of using psychotropic medication than those living in California.

Of the 763 children in the sample, 453 (59.4%) did not receive medication or behavior therapy, 37 (4.8%) received medication but no behavior therapy, 241 (31.6%) received behavior therapy but no medication, 25 (3.3%) received both medication and behavior therapy, and 7 (0.9%) had missing behavior therapy data.

Table IV shows treatment characteristics of the 62 children with ASD who used psychotropic medication. Of note, 28 children (3.7% of the total sample and 49.1% of the sample who used psychotropic medication) were 3 years of age when psychotropic medication was first used, 37 (59.7%) never received behavior therapy, and 20 (32.3%) used medication from >1 class. Of the 28 children who were 3 years of age when psychotropic medication was first used, 18 (64.3%) did not receive behavior therapy and 10 (35.7%) received both medication and behavior therapy.

We further examined how many children with ASD, who used psychotropic medication and had co-occurring attention problems, ever received behavior therapy. Of the 62 children with ASD who used medication, 54 had attention problems and, of those, 31 (57.4%) did not receive behavior therapy.

Discussion

We found that 8.1% of preschool children with ASD used psychotropic medication and 3.7% of these children were 3 years of age when the medication was first prescribed. Attention problems and study site were independently associated with a positive endorsement of medication use. Children with ASD and attention problems were >7 times as likely to use psychotropic medications than those without attention problems and most children with ASD who used medication (with [57.4%] and without [59.7%] attention problems) never received concomitant behavioral care. These findings suggest that many children with ASD who use psychotropic medications may not receive the behavior therapy that could enhance treatment results.

Compared with some other reports, the proportion of children with ASD who used psychotropic medication was lower in this study (8.1%) for all preschool children.^{16,19,20,45} Between 10% (time at enrollment) and 17% (time at clinic visit) of preschool children ages 3–6 years enrolled in the Autism Speaks Autism Treatment Network and 32% of children ages 6–11 years identified from a Medicaid database were reported to use psychotropic medication.^{6,19,21} Children in our current study were 2–5 years of age at the time of data collection, and older children were more likely to use psychotropic medication than younger children. Consequently, child age at the time of data collection may be responsible for differences in psychotropic medication use between reports.

Children with ASD and attention problems were more likely to have psychotropic medication, a finding replicated in numerous other studies.^{6,19,20,45} Behavior therapy is recommended as a first-line treatment for both children with ASD and other behavioral and developmental disorders (eg, ADHD and disruptive behavior disorder).^{12,14,46,47} Increasing the proportion of children with ADHD who receive recommended behavioral treatment is a national public health objective in Healthy People 2020, in part because behavior therapy initiated after medication may be less effective.^{48,49} A similar objective could be explored among children with ASD.

Parents of children in Georgia were significantly more likely to report psychotropic medication use than parents of children in California, where psychotropic medication use was closest to the mean value for all sites. Geographic variability in psychotropic prescription practices has been documented in a variety of studies of children with ASD and other behavioral and developmental disorders, such as ADHD.^{21,50–56} The most consistent finding to emerge from the literature is increased use of stimulant medications among children and adolescents living on the east coast and in the southern US.^{50,51,53,54} Other possible considerations based on available evidence are differences in access to healthcare, community poverty rates, insurance coverage, pharmaceutical marketing strategies, and stress within the provider environment (eg, emotional exhaustion, role conflict, role overload).^{52,55}

In other studies, male sex,^{6,57} placement in a child welfare system,^{6,58–60} and poverty or rural residence^{57,58} have also been associated with psychotropic medication use and polypharmacy in other studies. However, these studies did not focus specifically on

preschool-aged children with ASD,⁶ and some did not focus specifically on children with ASD.^{57–60} Nonetheless, these factors can be explored in future research to decrease disparities in psychotropic medication use in various pediatric populations.

Many children (59.4%) with ASD did not receive psychotropic medication or behavior therapy and 3.7% of the total sample were 3 years of age when psychotropic medication was first used. Of those who first used medication at 3 years, a majority (64.3%) did not receive behavior therapy. Future research could explore reasons why young children with ASD do not receive behavior therapy and attempt to quantify the number of behavior therapy providers with a certain geographic locale. This type of analysis was not feasible in our study because the regulation of behavior therapy licensure differs in each state. Nonetheless, pediatricians can address these issues by familiarizing themselves with behavioral supports within their communities, recommending behavioral care for treatment of ASD and other behavioral and developmental disorders, and talking with parents about multimodal care if psychotropic medication is prescribed. Telehealth and parent-mediated delivery models are viable strategies for mitigating the costs, travel requirements, and provider availability that can limit access to behavior therapy.^{61–64}

There are several limitations to our study. Both the use of psychotropic medication and receipt of behavior therapy were based on parent report and not verified with medical records. The SEED STQ asked parents if their child received applied behavior analysis or behavior modification therapy but did not define these terms. The SEED sample was restricted to preschool children so findings cannot be generalized to older populations. We were underpowered to explore factors associated with receipt of behavior therapy among the 62 children who received psychotropic medication. Moreover, we were specifically focused on behavior therapy and did not explore receipt of other types of therapies (eg, speech/language therapy). Despite these limitations, the SEED STQ offered a uniform method for measuring use of psychotropic medication, child age at first dose, and receipt of behavior therapy in a large sample of children with ASD in multiple geographic locations. Finally, children enrolled in SEED were carefully evaluated to determine ASD status, developmental level, and the presence of co-occurring symptoms.

Behavior therapy is recommended as a first-line treatment for ASD; when psychotropic medications are prescribed, they are most effective when used in combination with behavior therapy. We found that 8.1% of preschool children in our sample used psychotropic medication and, of those, many did not receive behavior therapy. Pediatricians are an important resource for children and families and can help facilitate behavioral treatment for children with ASD and other behavioral and developmental disorders.

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Glossary

ADHD	Attention deficit hyperactivity disorder
ADI-R	Autism Diagnostic Interview – Revised
ADOS	Autism Diagnostic Observation Schedule
ASD	Autism spectrum disorder
MSEL	Mullen Scales of Early Learning
SEED	Study to Explore Early Development
SRS	Social Responsiveness Scale
STQ	Services and Treatments Questionnaire

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Maternal demographic characteristics and type of insurance among children with ASD in the SEED who did and did not use psychotropic medication

Table 1.

Characteristics	ASD with psychotropic medication use (n = 62)		ASD without psychotropic medication use (n = 701)		χ^2 (P value)	Cramer V
	No. (%)	No. (%)	No. (%)	No. (%)		
Federal poverty status					0.86	0.03
100%	3 (5.1)	63 (9.2)				
101%–200%	13 (22.0)	134 (19.6)				
201%–300%	11 (18.6)	133 (19.5)				
301%–399%	10 (16.9)	112 (16.4)				
400%	22 (37.4)	240 (35.3)				
Maternal age (y)					0.57 (.90)	0.03
29	6 (9.7)	79 (11.3)				
30–34	14 (22.6)	181 (25.8)				
35–39	24 (38.7)	251 (35.8)				
40	18 (29.0)	190 (27.1)				
Maternal education					4.32 (.23)	0.08
College or advanced degree	39 (62.9)	383 (54.6)				
Associate degree or some college	16 (25.8)	226 (32.2)				
High school diploma	3 (4.8)	68 (9.7)				
Less than high school	4 (6.5)	24 (3.4)				
Maternal race/ethnicity					9.31 (.05)	0.11
Non-Hispanic White	30 (48.4)	322 (45.9)				
Non-Hispanic Black	23 (37.1)	171 (24.4)				
Hispanic	3 (4.8)	116 (16.5)				
Non-Hispanic other	5 (8.1)	81 (11.6)				
Missing race/ethnicity data	1 (1.6)	11 (1.6)				
Type of insurance					1.60 (.66)	0.05
Both private and public	9 (14.5)	90 (12.9)				
Private only	30 (48.4)	377 (53.8)				
Public only	23 (37.1)	224 (32.0)				
None	0 (0)	8 (1.1)				

Bold indicates statistical significance at $P < .05$. A Cramer V estimate of 0.20 is needed to assume a meaningful effect of medication use; 3 children with medication use were missing federal poverty data, 19 without medication use were missing federal poverty data, and 2 without medication use were missing insurance data.

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Table II.
Differences among children with ASD in the SEED who did and did not use psychotropic medication

Characteristics	ASD with psychotropic medication use (n = 62)		ASD without psychotropic medication use (n = 701)		χ^2 (P value)	Cramer V
	No. (%)	No. (%)	No. (%)	No. (%)		
ADI-R self-injurious behavior					5.72 (.02)	0.09
No	21 (33.9)	348 (49.7)				
Yes	41 (66.1)	352 (50.3)				
CBCL aggressive behavior					8.72 (<.01)	0.11
No	37 (59.7)	536 (76.6)				
Yes	25 (40.3)	164 (23.4)				
CBCL anxious/depressed					1.17	0.28
No	55 (88.7)	584 (83.4)				
Yes	7 (11.3)	116 (16.6)				
CBCL attention problems					38.5 (<.01)	0.23
No	8 (12.9)	378 (54.0)				
Yes	54 (87.1)	322 (46.0)				
CBCL emotional reactivity					1.23 (.27)	0.04
No	32 (51.6)	412 (58.9)				
Yes	30 (48.4)	288 (41.1)				
CBCL sleep problems					3.79 (.05)	0.10
No	43 (69.4)	559 (79.9)				
Yes	19 (30.6)	141 (20.1)				
Child sex					0.27 (.73)	0.02
Male	52 (83.9)	569 (81.2)				
Female	10 (16.1)	132 (18.8)				
MSEL low developmental level					5.87 (.02)	0.10
No	13 (21.7)	259 (37.3)				
Yes	47 (78.3)	435 (62.7)				
SRS moderate to severe restricted interests and repetitive behaviors					5.40 (.02)	0.10
No	11 (18.0)	225 (32.4)				
Yes	50 (82.0)	469 (67.6)				

Characteristics	ASD with psychotropic medication use (n = 62)		ASD without psychotropic medication use (n = 701)		χ^2 (P value)	Cramer V
	No. (%)	No. (%)	No. (%)	No. (%)		
SRS moderate to severe total ASD symptoms						
No	8 (13.1)	189 (27.2)			5.80 (.02)	0.10
Yes	53 (86.9)	505 (72.8)				
Study site						
CA	8 (12.9)	115 (16.4)				
CO	3 (4.8)	126 (18.0)				
GA	21 (33.9)	125 (17.8)				
MD	14 (22.6)	131 (18.7)				
NC	12 (19.3)	110 (15.7)				
PA	4 (6.5)	94 (13.4)			17.0 (<.01)	0.15

CBCL, Child Behavior Checklist 1½–5.

Bold indicates statistical significance at $P < .05$. A Cramer V estimate of 0.20 is needed to assume a meaningful effect of medication use.

ADI-R, n = 700 for children without medication use; CBCL, n = 700 for children with medication use and 694 for children without medication use; SRS, n = 61 for children with medication use and 694 for children without medication use.

Table III.

Factors associated with psychotropic medication use among children with ASD in the SEED after adjusting for maternal race/ethnicity

Factors	aOR	95% CI	P value
CBCL attention problems			
No (Referent)			
Yes	7.65	3.41–16.1	<.001
Study site			
CA (Referent)			
CO	0.36	0.09–1.47	.15
GA	2.62	1.04–6.56	.04
MD	1.45	0.55–3.81	.45
NC	1.27	0.46–3.54	.65
PA	0.61	0.17–2.18	.44

Bold indicates statistical significance at $P < .05$. A forward stepwise procedure was used to identify only variables significantly associated with medication use to improve model parsimony.

Table IV.

Treatment characteristics of children with ASD in the SEED who used psychotropic medication (n = 62)

Characteristics	No. (%)
Age (y) at first medication use (n = 57)	
3	28 (49.1)
>3	29 (50.9)
Medication and behavior therapy	
No	37 (59.7)
Yes	25 (40.3)
Medication class(es)	
Seizure	24 (38.7)
Stimulant	23 (37.1)
Nonstimulant	28 (45.2)
Atypical antipsychotic	4 (6.5)
Antidepressant/anxiety	4 (6.5)
No. of medication class(es)	
1	42 (67.7)
2	20 (32.3)

Medication class(es) is not a mutually exclusive variable; among children who did not use psychotropic medication and had behavior therapy data (n = 694) there were 453 (65.3%) who did not receive behavior therapy.