Mothers of Adolescents and Adults With Autism: Parenting Multiple Children With Disabilities

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Abstract

We examined types of disabilities in siblings from a large sample of families of adolescents and adults with autism spectrum disorders (ASD) and the impact of another child with a disability on maternal and family well-being. The most frequent disabilities in siblings were attention and hyperactivity (4.6%) and autism spectrum (2.4%) disorders and psychiatric (2.1%) and learning (2.0%) disabilities. Mothers parenting another child with a disability (in addition to the child with ASD) had higher levels of depressive symptoms and anxiety and lower family adaptability and cohesion compared with mothers whose only child with a disability had ASD (matched on child age and family size). Findings are discussed with respect to understanding the needs of such families, including service provision.

Considerable research findings suggest that parents of children with autism experience higher levels of stress, depression, anxiety, and reduced marital satisfaction than do parents of typically developing children or children with other types of disabilities (e.g., Abbeduto et al., 2004; Seltzer, Krauss, Orsmond, & Vestal, 2001; Sharpley, Bitsika, & Efremidis, 1997). This research has been focused primarily on the impact of the child with autism on the family, but investigators have not considered the effects of other children with disabilities in the family on parental adjustment. In this study, we examined this potential source of stress in the lives of these families: the situation when there is another child with a disability in the family in addition to the child with an autism spectrum disorder (ASD).

Indeed, families of individuals with ASDs are more likely to include siblings with disabilities than are families of children without disabilities or with other types of disabilities (Bolton et al., 1994; Fombonne, Bolton, Prior, Jordan, & Rutter, 1997; Piven et al., 1990). The prevalence of ASDs and the *broader autism phenotype* (defined as subtle communication and social impairments or repetitive and stereotyped interests and activities not meeting the full criteria for an ASD) in siblings has been reported to be higher than in the general population (Bolton et al., 1994; Fombonne et al., 1997; Piven et al., 1990). In addition, cognitive impairments and psychiatric disorders have been reported to aggregate in family members of individuals with autism (Smalley, McCracken, & Tanguay, 1995; Szatmari et al., 1995). Siblings of children with autism are at greater risk of both internalizing and externalizing adjustment problems (e.g., Fisman, Wolf, Ellison, & Freeman, 2000; Rodrigue, Geffken, & Morgan, 1993). However, researchers have not examined the potential impact of multiple children with disabilities on parental or family adjustment. Thus, we do not know the extent to which the greater difficulties observed in parents of children with ASDs may be due, in part, to the presence of multiple children with disabilities in the family.

One could hypothesize that the presence of more than one child with a disability might contribute to greater family adjustment difficulties. The additional stress to the family system may derive from the behaviors of the children with the disabilities and the emotional and financial burden of additional medical and therapy appointments. Indeed, Kohler (1999) reported that families of children with autism received an average of six different services from four or more different agencies. Parents have noted that services received from differ-

ent providers are often disorganized (Kohler, 1999). These challenges may be compounded if the parent is trying to coordinate services for more than one child with a disability. Moreover, family or social activities could be restricted because of the competing needs of each child, and there might be a lack of personal freedom for the mother and limited time to participate fully in other life roles (e.g., spouse or employee). Finally, given that siblings are often a source of support to the brother or sister with the disability throughout the life course (Orsmond & Seltzer, 2000), parents may have greater concern for the long-term well-being of their child with ASD if siblings are less able to take on this supportive role because of their own disabilities. Thus, in this analysis, which is based on a larger longitudinal study (Greenberg, Seltzer, Hong, & Orsmond, 2006; Orsmond, Seltzer, Greenberg, & Krauss, 2006; Seltzer et al., 2003), we examined maternal depression, anxiety, and health, as well as family cohesion and adaptability, as outcome variables that we hypothesized would be differentially affected by the presence of a second child with a disability.

In examining the stress of an additional child with a disability on the family, we controlled for other child and maternal characteristics found in the literature to be associated with well-being for mothers of children with autism. Regarding child characteristics, the presence of maladaptive behaviors has consistently been associated with greater stress in mothers of children with autism (Fisman et al., 2000; Greenberg et al., 2006; Hastings, 2003; Sharpley et al., 1997). Child age has also been implicated; some researchers have reported greater stress in mothers of older than younger adolescents (Donovon, 1988), although other researchers reported no association between child age and parental well-being (Gray & Holden, 1992; Sharpley et al., 1997). Gender of the child may also be an important factor. Bristol, Gallagher, and Schopler (1988) suggested that parenting a son with autism may be more stressful to mothers than parenting a daughter with this diagnosis because of the size and physical strength of boys as they grow up.

We also controlled for maternal characteristics in the present analysis. Mothers of children with autism have been found to experience higher levels of depressive symptoms if they were less satisfied in their marriage (Fisman et al., 1996; Rodrigue, Morgan, & Geffken, 1990) or if they had lower household income (Abbeduto et al., 2004). Moreover, coping skills have been found to impact family adaptation in mothers of children with developmental disabilities. *Coping skills* refer to the person's active or passive strategies and behaviors to deal with stressful events (Carver, Scheier, & Weintraub, 1989). Problem-focused coping strategies actively aim to solve problems and reduce the effects of stressful events, whereas emotion-focused coping strategies intend to regulate or eliminate undesirable emotions that are associated with stressful events (Carver et al., 1989). Greater use of problem-focused coping strategies and less reliance on emotion-focused coping strategies has been shown to be associated with more positive psychological well-being (Essex, Seltzer, & Krauss, 1999; Kim, Greenberg, Seltzer, & Krauss, 2003; Pakenham, Samios, & Sofronoff, 2005; Seltzer, Greenberg, & Krauss, 1995; Sivberg, 2002). However, Higgins, Bailey, and Pearce (2005) found that although emotion-focused coping strategies were predictive of poorer maternal adjustment for parents of children with autism, problem-focused coping strategies were not significantly associated with better adjustment.

Typically, the outcome variables in studies of families of children with autism have focused on maternal psychological well-being, such as depressive symptoms (e.g., Abbeduto et al., 2004; Pakenham et al., 2005) or family adjustment in the forms of family adaptability and cohesion (e.g., Martin & Cole, 1993). In this analysis we also examined maternal health. Although little is known about the impact of caring for children with developmental disabilities on the physical health of parents, prior research indicates that parent caregivers of adults with mental health problems have elevated levels of physical health symptoms (Seltzer et al., 2001), and, thus, maternal health warrants examination in this study.

We asked three research questions. First, we investigated the frequency and types of disabilities reported in the siblings of a sample of adolescents or adults with ASDs. Second, we asked whether families who have multiple children with disabilities, including a child with an ASD, differed from those whose only child with a disability had an ASD, with respect to maternal well-being (depressive symptoms, anxiety, health) and family functioning (adaptability and cohesion). Our hypothesis was that mothers parenting multiple children with disabilities, including a child with an autism spectrum disorder, would experience an elevation in depressive symptoms, greater anxiety, poorer health, and

less family cohesion and adaptability than those parenting a single child with autism spectrum disorder. Finally, we asked the question: To what extent does the presence of multiple children with disabilities predict these maternal and family outcomes. controlling for other predictors previously identified in the literature to be associated with maternal well-being and family functioning: characteristics of the son or daughter with autism spectrum disorder (behavior problems, age, gender) and maternal characteristics (marital status, income, coping strategies). Having a better understanding of whether and how the presence of more than one child with a disability in the family contributes to maternal well-being will help identify a subset of mothers who may be at particular risk for poor health and mental health outcomes or families at greater risk of low levels of adaptability and cohesion and will thus help practitioners deliver more family-centered services.

Method

Participants

The participants in this analysis were part of an ongoing longitudinal study of 406 adolescents and adults with ASDs and their families (Seltzer et al., 2003). A diagnosis on the autism spectrum was confirmed by administration of the Autism Diagnostic Interview-Revised (Lord, Rutter, & Le Couteur, 1994).

The subsample for the present analysis included families in which there were at least 2 children. In 35 of the original 406 families, there was only one child in the family; therefore, their data were not included here. Forty-six additional cases were excluded for the following reasons:. the sibling was a foster or stepchild ($n = 6$) or the father was the primary respondent ($n = 9$). Our original sample of 406 individuals with ASDs included several families with more than one child with this disorder For this situation, we chose the oldest child (or a randomly chosen child in the case of twins or triplets) as our reference child in these families, thus reducing the number of families by 11 more cases. Furthermore, 20 families were excluded because of missing data for our variables of interest. Thus, the final sample for this analysis was 325 families.

The mothers in these families were predominantly Caucasian (93.5%), with an average age of 51 years (range = 32 to 81). Over two thirds (67.4%) were employed, and 73.3% had education beyond high school. Three quarters (79.1%) of the mothers were married, and the average household income ranged from $40,000 to $44,999 in 1999. Their children with ASDs ranged in age from 10 to 52 years, with an average age of 21.54 years. The majority of the individuals with ASDs were male (70.5%). Almost two thirds (64.9%) lived in the parental home.

Preliminary analyses indicated that 59 of the 325 families included one other child with a disability in addition to the child with ASD. To answer our second and third research questions, we created a comparison group of 59 mothers parenting only one child with ASD by matching on age of the child with ASD and the number of children in the family, for a total of 118 families in 59 matched pairs.

The mothers of individuals with ASDs were interviewed during a home visit and completed self-report questionnaires. The data for the analyses were collected at the onset of this four-wave longitudinal study.

Measures

Sibling disability status. Mothers completed a family information questionnaire, reporting the following information on each of her children: age, gender, marital status, educational level, and whether or not the child had a disability. Specifically, mothers were asked "If this child has a disability, please note what type of disability." Siblings were coded as either having a disability (1 = yes) or not (0 = no). We further categorized the mother's written description of her child's disability into the following groups: (a) ASDs, including autistic disorder, Asperger's disorder, pervasive developmental disorder–not otherwise specified; (b) attention-deficit and hyperactivity disorders, including attention-deficit hyperactivity disorder (ADHD), attention disorders, and hyperactivity; (c) learning disabilities, dyslexia, and auditory-processing problems; (d) psychiatric disorders, including depression, anxiety, bipolar disorder, emotional disturbance, mental illness, mood disorder, schizophrenia, obsessive-compulsive disorder, eating disorder, and posttraumatic stress disorder; (e) genetic syndromes and abnormalities, including Ehlers-Danlos syndrome, chromosomal abnormality, Beckwith-Weidemann syndrome, Holt-Oram syndrome, Axenfeld's anomaly, Smith-Lemli-Opitz/RSH syndrome; and (f) speech problems, including speech delay and stuttering.

Maternal depressive symptoms. The measure of these symptoms was the Center for Epidemiological Studies-Depression Scale (Radloff, 1977), which has been reported to be a reliable and valid measure of depressive symptoms in community samples (Gatz & Hurwicz, 1990). Twenty statements (e.g., "I was bothered by things that usually don't bother me") are scored on a 4-point scale and summed for a total score. A total score of 16 or higher indicates a possibility of clinical depression. The mean for our sample (N = 325) was 12 (SD = 9.56, range = 0 to 42). Cronbach's alpha was .91.

Maternal anxiety. The 9-item Anxiety subscale of The Profile of Mood States (McNair, Lorr, & Droppleman, 1971) was administered. This measure has been shown to have strong construct validity (Gibson, 1998). Mothers were asked to rate on a 5-point scale how they felt over the past week. A higher total score indicates greater anxiety in the past week. The mean for our sample was 11.12 (SD = 6.71, range = 0 to 36). Cronbach's alpha was .89.

Maternal health. Mothers were asked to rate their overall health from 1 (*poor*) to 4 (*excellent*). The average score was 2.90 (SD = .71). Research has shown that this one-item measure of health is a powerful and valid predictor of health outcomes, including mortality (Idler & Benyami, 1997).

Family adaptability and cohesion. Mothers completed the Family Adaptability and Cohesion Evaluation Scales (Olson, Bell, & Portner, 1982). The scales contain 30 items used to assess family adaptability (14 items) and cohesion (16 items). Respondents rate the frequency of a described behavior on a 5-point scale. Higher scores indicate greater family adaptability and cohesion. The mean of the family adaptability for the present sample was 48.40 (SD = 6.39, range = 27 to 66) and the mean of the family cohesion was 60.86 (SD = 8.91, range = 30 to 79). The alphas for both cohesion subscale and adaptability subscales were .72.

Coping style. Maternal coping style was measured by the COPE (Carver et al., 1989), which includes scales measuring problem-focused coping strategies (active coping, planning, positive reinterpretation and growth, and suppression of competing activities) and emotion-focused coping strategies (denial, focus on/venting of emotions, mental disengagement, and behavioral disengagement). Each item is rated on a 4-point scale, with higher scores indicative of greater use of problem-focused and emotion-focused coping. The mean of the problem-focused coping for the present sample was 33.05 (SD = 7.21, range = 14 to 48), and the mean of the emotion-focused coping was 13.08 (SD = 5.24, range = 2 to 34). Alphas for problem-focused coping and emotion-focused coping were .87 and .71, respectively.

Child characteristics. Child characteristics included age, gender (1 for male and 2 for female), and behavior problems. Behavior problems in the son or daughter with autism were measured by the Scales of Independent Behavior–Revised (Bruininks, Woodcock, Weatherman, & Hill, 1996), which consists of eight behavior problems divided into three domains: Internalizing Behaviors (hurts self, unusual or repetitive habits, and withdrawal or inattentive behavior), Asocial Behaviors (socially offensive behavior and uncooperative behavior), and Externalizing Behaviors (hurts others, destructive behavior, and disruptive behavior). Each mother was asked whether her son or daughter had manifested any of these eight behavior problems in the last 6 months and, if so, to describe the problem and rate its frequency and severity. Standardized algorithms (Bruininks et al., 1996) were used to translate frequency and severity ratings into a general summary score, where higher scores indicated more severe maladaptive behaviors. Behavior problems scores ranged from 99 to 153 (M = 115.26, SD = 11.38).

Familial aspects of ASDs. Mothers were queried about whether anyone in their family had "problems similar to their son or daughter" with ASD. If so, the mother was asked to describe the problem and indicate who that person was. Descriptions that were coded as positive for ASDs included diagnosed ASDs, suspected ASDs, and difficulties that involved significant social impairment. Families were coded as having a family history that was either positive or negative for ASDs. A positive family history was indicated by at least one first-, second-, or third-degree family member having a diagnosis or suspected ASD.

To assess the presence of broader autism phenotype characteristics in mothers, we asked them to complete the Social Interaction subsection of the Development, Social Interaction, and Mood Questionnaire (Magnusson et al., 2005). This subsection contains 38 items scored on a 4-point scale (0 = *definitely disagree* to 3 *definitely agree*) rating social communication, rigid and repetitive behaviors, and cognitive attention. Scores for mothers ranged from

3 to 69 (M = 32.27, *SD* = 12.07), with an alpha reliability of .89.

Maternal. Marital status, income, and education were included as maternal characteristics. Marital status was coded as 1 (*married*) and 0 (*not married*). Family income ranged from below $5,000 to above $70,000 (1 = less than $5000 per year, 2 = $5000–$9999, 3 = $10,000–$14,999, through 3 = more than $70,000).

Results

To address the first question, we examined the frequency with which mothers reported that their other children had disabilities. In the 325 families analyzed for this first research question, mothers reported on the disability status of 659 siblings of the son or daughter with ASDs. These 659 siblings ranged in age from 1 to 57 years (M = 24). Almost 15% of them (*n* = 96) were children age 11 and under; 25.6% (*n* = 168), adolescents ages 12 to 18; 10.1% (*n* = 66), older adolescents and young adults ages 19 to 22; 37.2% (*n* = 244), young and middle adults ages 23 to 40; and 12.5% (*n* = 82), siblings older than 40.

Seventy-three of the 325 families included more than one child with a disability. The most common disabilities in siblings were attention-deficit and hyperactivity disorders—ADD/ADHD (*n* = 30, 4.6% of siblings) and ASDs (*n* = 16, 2.4%). Of the 16 siblings with ASDs, 9 were twins, and 2 were from a set of triplets. Other disabilities included psychiatric problems (*n* = 14, 2.1%), learning disabilities (*n* = 13, 2.0%), genetic syndromes and abnormalities (*n* = 7, 1.1%), and speech problems (*n* = 4, 0.6%). The remaining siblings with disabilities (*n* = 30, 4.6%) had other types of disorders, such as cerebral palsy, traumatic brain injury, mental retardation, visual impairment, hearing impairment, paraplegia, stroke, and hydrocephalus.

Of these 73 families, 14 (4.3%) included at least 2 additional children who had a disability. We focused our subsequent analyses on the 59 families that included one child with ASDs and only one additional child with a disability (thus excluding the 14 families who had more than 2 children with disabilities). Table 1 shows the distribution of disabilities in these 59 families, divided by age groups. As shown, siblings age 21 or younger were more likely to be reported as having ADD/ADHD or ASDs than were siblings older than 21 years of age. The other disability categories did not differ significantly by age group of the sibling.

To answer our second research question, we compared the 59 mothers parenting 2 children with disabilities (at least 1 of whom had an ASD) to 59 mothers parenting 1 child with ASD and other children without disabilities, matched on the age of the child with ASD and the number of children in the family. To analyze group differences, we used McNemar tests for categorical data and matched pairs *t* tests for continuous and ordinal variables and nonparametric statistics to confirm the results for ordinal variables. The demographic data for these two groups are presented in Table 2. No significant differences between groups were observed on any of the characteristics of the child with ASD, maternal characteristics, or sibling characteristics, according

Table 1 Age Distribution of Types of Disabilities in Siblings

	Age ≤ 21		Age > 21		
Type of disability	*n*	%	*n*	%	χ^2
ADD/ADHD[a] (*n* = 30)	24	80.0	6	20.0	14.99***
ASDs[b] (*n* = 16)	12	75.0	4	25.0	6.10*
Psychiatric diagnoses (*n* = 14)	9	64.3	5	35.7	2.31
Learning disabilities (*n* = 13)	9	69.2	4	30.8	3.31
Genetic syndromes (*n* = 7)	5	71.4	2	28.6	2.13

[a]Attention deficit disorder/attention deficit disorder with hyperactivity. [b]Autism spectrum disorders.
*$p < .05$. ***$p < .001$.

Table 2 Demographic Characteristics for Matched Groups

	One child with ASD[a] (n = 59)		Multiple children with disabilities (n = 59)	
Variable	Mean/%	*n*/*SD*	Mean/%	*n*/*SD*
Characteristics of child with ASD				
Age (mean, *SD*)	18.68	7.2	18.64	6.98
Gender (% male)	78		78	
Behavior problems (mean, *SD*)	116.86	11.90	116.63	10.19
Residential status (%, *n*)				
Parental home	72.9	43	72.9	43
Out of parental home	27.1	16	27.1	16
Maternal characteristics				
Ethnicity (% White)	93.2		94.9	
Age (mean, *SD*)	48.03	8.63	48.12	8.81
Marital status (% married)	76.3		78.0	
Household income (mean, *SD*)	9.80	3.46	9.68	3.18
Education (%)				
8th–11th grade	3.4		1.7	
High school/GED	25.4		20.3	
College	30.5		50.8	
Graduate	40.7		27.1	
Employment (% employed)	78.0		64.4	
Family size (mean, *SD*)	3.00	1.16	3.02	1.22
Family history of ASDs (%)	23.7		15.3	
BAP[b] characteristics (mean, *SD*)	30.36	11.57	27.67	26.54
Characteristics of all siblings in families (n = 117)				
Age (mean, *SD*)	21.21	10.53	20.04	9.79
Marital status (%)				
Never married	76.1		83.8	
Married	18.8		13.7	
Separated/Divorced	4.3		6.2	
Widowed	0.9		0	
Education (%)				
Less than 8th grade	23.0		33.0	
8th–11th grade	23.0		20.9	
High school/GED[d]	14.2		13.9	
College	31.0		25.2	
Graduate	8.8		7.0	
Residential status (%)				
Parental home	17.6		22.2	
Out of parental home	82.4		77.8	

[a]Autism spectrum disorder. [b]Broader autism phenotype. [c]General Educational Development.

to whether the mother had 1 child with ASD or multiple children with disabilities. Given this broad pattern of similarity across measures, the two groups appear to be very similar in background characteristics, differing only with respect to whether they had 1 or 2 children with disabilities.

The data presented in Table 3 show that mothers of a child with ASD and another child with a disability reported a significantly higher level of depressive symptoms, $t = 2.60$, $p < .05$, greater anxiety, $t = 2.37$, $p < .05$, less family adaptability, $t = -3.11$, $p < .05$, and less family cohesion, $t = -2.18$, $p < .05$, than did mothers parenting a child with ASD and other children without disabilities. Maternal health did not differ significantly between groups.

As a follow-up analysis to examine whether the type of disability in siblings was associated with differences in maternal well-being and family functioning, we compared three groups of mothers: mothers parenting 2 children with ASDs ($n = 13$), those parenting a child with ASD and another child with ADD/ADHD ($n = 19$), and mothers parenting 1 child with ASD and other children without disabilities ($n = 59$). Both groups of mothers parenting more than 1 child with a disability reported a significantly higher number of depressive symptoms, $F(2, 88) = 6.74$, $p < .05$ (ASD group M = 16.77, *SD* = 12.34; ADD/ADHD group M = 17.47, *SD* = 9.47) and greater anxiety, $F(2, 88) = 4.08$, $p < .05$ (ASD group M = 14.62, *SD* = 8.19; ADD/ADHD group M = 14.01, *SD* = 6.46) than did mothers whose only child with a disability had ASD (depressive symptoms, M = 9.52, *SD* = 8.84; anxiety, M = 10.04, *SD* = 6.51). No significant differences were observed on anxiety or depressive symptoms between the two disability groups. There were no significant differences between families in these three groups on family adaptability (ASD group M = 45.54, *SD* = 5.27; ADD/ADHD group M = 47.95, *SD* = 7.15; 1 child with ASD M = 49.50, *SD* = 5.23) or cohesion (ASD group M = 58.42, *SD* = 8.43; ADD/ADHD group M = 59.84, *SD* = 8.93; 1 child with ASD M = 61.44, *SD* = 7.04).

To address our third research question, we examined the predictors of maternal well-being and family functioning. Bivariate correlations are reported in Table 4. Table 5 presents the findings of five ordinary least squares linear regression models predicting maternal depressive symptoms, anxiety, health, and family adaptability and cohesion. Age of the son or daughter with ASD, marital status, and maternal problem-focused coping were never significant as predictors in our preliminary regression models, so they were excluded from our final models.

With respect to maternal depressive symptoms (see Table 5), the regression coefficient for sibling disability status was significant, controlling for the other factors, indicating that having 2 children with disabilities was associated with higher levels of maternal depressive symptoms. Moreover, higher levels of maternal depressive symptoms were observed when the son or daughter with ASD had more behavior problems, when household income was lower, and when the mother used higher levels of emotion-focused coping strategies.

With respect to maternal anxiety (see Table 5), the regression coefficient for sibling disability status was again significant, indicating that having 2 children with disabilities was associated with higher levels of maternal anxiety, net of other maternal and child characteristics. In addition, higher levels

Table 3 Mothers Parenting One Child With ASDs Versus Multiple Children With Disabilities

	One child with ASDs[a]		Multiple children with disabilities	
Variable	Mean	*SD*	Mean	*SD*
Maternal depressive symptoms	9.53	8.84	14.17	9.56
Maternal anxiety	10.04	6.51	12.97	6.59
Maternal health	3.00	0.67	2.83	.72
Family adaptability	49.50	5.23	45.90	7.04
Family cohesion	61.44	7.04	58.26	9.13

Note. $N = 59$ for both groups.
[a]Autism spectrum disorders.

of maternal anxiety were observed when the mother used higher levels of emotion-focused coping strategies. The presence of another child with a disability was not associated with the mother's overall level of health, and none of the other predictors were significant.

More than 1 child with a disability in the family was predictive of lower levels of family adaptability, net of other factors. Moreover, lower levels of family adaptability were observed when the son or daughter with ASD had more severe behavior problems and when the child with ASD was a girl. More than 1 child with a disability in the family was also predictive of lower levels of family cohesion. In addition, higher levels of emotion-focused coping strategies by the mother were associated with lower levels of family cohesion.

Discussion

Our goals in this study were to examine the frequency and range of disabilities in siblings in a large community sample of families of adolescents and adults with an ASD and to compare the well-being of mothers who are parenting 1 child with an ASD with the well-being of those parenting multiple children with disabilities. There were two main findings. First, there were several different types of disabilities in siblings, with ADD/ADHD the most common, followed by ASDs. Second, mothers parenting multiple children with disabilities reported more depressive symptoms, greater anxiety, and less family adaptability and cohesion than mothers parenting 1 child with a disability.

In our study, siblings were less likely to have disabilities than in prior research, specifically with respect to emotional and cognitive difficulties (e.g., Bailey et al., 1995; Ritvo, Freeman, Mason-Brothers, Mo, & Ritvo, 1985). The rates of diagnosed psychiatric disorders and learning disabilities in siblings were each about 2%. In contrast, in a relatively small sample of families, Piven et al. (1990) presented a high rate (17.9%) of social–emotional dysfunction in adult siblings of children with autism. One possible reason for our lower rates of psychiatric difficulties in siblings is that in the past researchers have frequently recruited families through clinical settings, whereas the families in our study represent a community sample. Second, a clinical assessment of disabilities in siblings may yield different information. Finally, in the past some researchers used twin or multiple incidence families to examine the presence of cognitive impairments or learning disabilities in siblings of children with autism. The proportion of such multiplex families was low in our study (1.2%).

We did not expect ADD/ADHD to be the disability reported most frequently in siblings. To our knowledge, no prior research has been conducted to examine this disorder in siblings of children with

Table 4 Pearson Correlations of Study Variables (n = 118)

Variable	1	2	3	4	5	6
1 Maternal depressive symptoms	—					
2 Maternal anxiety	.707**	—				
3 Maternal health	−.351**	−.319**	—			
4 Family adaptability	−.300**	−.270**	.114	—		
5 Family cohesion	−.310**	−.353**	.087	.750**	—	
6 Marital status of mother	−.009	.095	.079	−.102	−.028	—
7 Household income	−.261**	−.151	.165	.085	.143	.467**
8 Problem-focused coping	−.050	−.037	.071	.316**	.232*	−.059
9 Emotion-focused coping	.320**	.283**	.070	−.182*	−.257**	−.054
10 Sibling with disability	.247**	.220*	−.122	−.281**	−.193*	.020
11 Behavior problems	.213*	.163	−.048	−.209*	−.115	−.029
12 Age of child with ASD[a]	−.207*	−.141	−.016	.035	−.039	−.149
13 Gender of child with ASD	.124	.071	−.053	−.141	−.110	−.002
14 Residential status of child with ASD	.235*	.203*	−.129	−.058	−.069	.212*

[a]Autism spectrum disorder.
*$p < .05$. **$p < .01$.

autism. The rates of ADD/ADHD observed in our sample were comparable to rates in the general population as noted in the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 2000). This information, however, helps us understand the context of caregiving for these mothers. There is considerable literature on the challenges of parenting children with ADHD (Anastopoulous, Guevremont, Shelton, & DuPaul, 1992; Baker & McCal, 1995; Harrison & Sofronoff, 2002; Kennedy & Banks, 2002). Further in-depth, and perhaps qualitative, research examining how parents in such situations balance the service needs of their various children and family demands will allow professionals to provide services that are more family-centered. Moreover, there is little research on the long-term impact of parenting either children with ASDs or ADHD, and our findings suggest that the negative effects on mothers' well-being continue even when her children are adults.

The findings from this study, as well as other studies, suggest that there is a significantly increased risk for ASDs in the siblings of individuals with autism. The reported sibling risk rates range from 1.6 to 5.9% (see Bailey, Palferman, Heavey, & Le Couteur, 1998, for a review). In the present study, 2.3% of siblings were reported to have ASDs, which is much greater than the population prevalence of 0.3% to 0.6% (Centers for Disease Control, 1999).

As we hypothesized, mothers who had an additional child with a disability reported greater challenges to their personal well-being and family functioning. It has been consistently found that parents of children with autism experience higher levels of anxiety and other emotional difficulties (Bitsika & Sharpley, 2004; Seltzer et al., 2001; Wolf, Noh, Fisman, & Speechley, 1989). Our findings suggest that this may be due, in part, to the substantial subgroup of mothers who are parenting more than 1 child with a disability. Prior researchers have not examined the presence of other children with disabilities as a predictor of maternal well-being nor have they controlled for this source of stress. Moreover, our data indicate that the challenges of parenting young children with such disabilities as ASDs and ADD/ADHD (the most frequently occurring combination) do not end when the child reaches adolescence or adulthood, and perhaps there are lasting effects.

The findings regarding family functioning shed light on some of the difficulties such families may face. Mothers parenting multiple children with disabilities reported lower levels of family adaptability and cohesion. This suggests that families who face competing demands may become less flexible in their ability to accommodate everyone's needs. Such findings have implications for well-being of all family members and for service provision. DeGrace (2004) found that mothers of children with autism relied on stringent patterns of routines

Table 4 Extended

7	8	9	10	11	12	13	14
—							
−.117	—						
−.125	−.089	—					
−.024	−.134	.027	—				
−.043	−.021	.117	−.007	—			
−.285**	.016	−.024	−.002	−.181	—		
−.037	.021	−.080	.000	−.081	−.128	—	
.206*	−.097	.085	.000	.075	−.511**	.048	—

Table 5 Regressions Predicting Maternal and Family Outcomes ($n = 112$)

	Standardized Beta				
Variable	Depressive symptoms	Anxiety	Maternal health	Adaptability	Cohesion
Sibling with disability	.220**	.215*	−.124	−.306***	−.231**
Child characteristics					
Behavior problems	.181*	.116	−.038	−.216*	−.090
Gender of child with ASD[a]	.154	.112	−.043	−.183*	−.151
Maternal characteristics					
Household income	−.205*	−.114	.164	.052	.100
Emotion-focused coping	.287***	.253**	.096	−.152	−.234*
$R^2(6, 106)$	.257***	.164**	.051	.204***	.159**

[a]Autism spectrum disorder.
*$p < .05$. **$p < .01$. ***$p < .001$.

to organize their family life. Our findings suggest that the presence of another child with a disability may accentuate this coping strategy, which likely impacts everyone's role in the family. Therapists should be aware of the possibility of these more routinized and less flexible family patterns. A family systems perspective suggests that flexibility is essential for the family system to adapt to change and accommodate every member's needs to the greatest extent possible (Walsh, 1993).

The context in which mothers parent multiple children with disabilities is important to consider. For example, Glidden, Flaherty, and McGlone (2000) found that parents who adopted a large number of children with disabilities had well-being that was equal to or more positive than that in families of fewer adopted children with disabilities. The families in the study by Glidden and her colleagues, however, may have chosen to adopt multiple children with disabilities, which was not typically the case in the current study.

In addition to the presence of another child with a disability, we found other factors that contributed to the well-being of family members, such as maladaptive behaviors in the son or daughter with ASD and maternal coping strategies. More severe maladaptive behaviors in the son or daughter were associated with higher levels of maternal depressive symptoms and less family adaptability. These findings are consistent with prior research (e.g., Abbeduto et al., 2004; Greenberg et al., 2006).

Regarding coping strategies, the results of the present study, as in other studies, suggest that more frequent use of emotion-focused coping contributes to increased levels of stress and reduces family cohesion (Essex et al., 1999; Folkman & Lazarus, 1986; Grant & Whittell, 2000; Kim et al., 2003). Moreover, our finding regarding problem-focused coping was consistent with results in one previous study on families of children with autism (Higgins et al., 2005), suggesting that problem-focused coping may not be effective in improving maternal well-being or family functioning in the context of autism. This finding may be specific to autism, because researchers investigating mothers of children with other types of developmental disabilities have found that problem-focused coping reduces depressive symptoms and burden (Seltzer et al., 1995). Practitioners should pay attention to the types of coping strategies that mothers use, and intervention could potentially focus on decreasing the use of emotion-focused coping strategies. Unfortunately, in this study we did not identify particular strategies that might be helpful to parents of children with ASDs.

Interestingly, mothers who had a daughter with an ASD reported greater difficulty with family adaptability than did mothers with an affected son. These results are different from the findings of one previous study in which Bristol et al. (1988) found that boys with developmental disabilities more negatively affected family adaptation, such as marital maladjustment and poor quality of parenting, compared with girls. These findings regarding gender, however, must be viewed cautiously, because bivariate correlations were not significant. Given that there has been little examination of gender differ-

ences in autism and the impacts on parents, these findings warrant further study.

Finally, the importance of family financial resources was highlighted. Mothers who reported higher family incomes reported fewer depressive symptoms, regardless of the number of children with disabilities in the family. Previous investigators have also identified a relationship between lower income and depressive symptoms, both for mothers of children with disabilities (e.g., Abbeduto et al., 2004) and for people in the general population (Patten et al., 2006).

Notable strengths of the present study include the relatively large sample size and the use of a community sample. Among the limitations, we relied on self-report measures by the mothers rather than independent clinical diagnoses, so the rates of disabilities reported may underestimate the rates of disabilities in the sample. Second, the fact that siblings represented a wide age range in this study may be viewed as a weakness, although we view it as a strength of the study. Some siblings had childhood disorders (e.g., ADHD and speech disorders), whereas other siblings had psychiatric disorders (e.g., depression, schizophrenia) for which the onset is often in early adulthood. The children under age 3 were obviously too young for some diagnoses, but not for others such as ASDs. Adolescent and adult siblings in our study, however, were relatively equally likely to have a psychiatric disability. Finally, the families participating in our study were largely Caucasian, although a range of income levels was represented; thus, generalizations to other cultural and ethnic groups may not be appropriate.

In conclusion, no prior research has been focused on the experiences of mothers parenting 1 child with autism and an additional child with a disability. Researchers on families of children with autism have generally assumed that the primary stressor in the family is the child with autism. We found that the presence of other children with disabilities was associated with elevated levels of maternal distress and lower levels of family functioning. Moreover, these findings have implications for service delivery. Service providers are reminded to take into account the family context of service provision and are encouraged to work with other service providers to the family to coordinate interventions. Longitudinal research is needed to examine the long-term impact of parenting multiple children with disabilities on maternal psychological well-being and physical health, especially as these mothers reach midlife and older age. Furthermore, longitudinal quantitative research could be complemented with more in-depth qualitative research focused on understanding mothers' experiences and their specific challenges in parenting multiple children with disabilities.

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