

# Marital Satisfaction and Life Circumstances of Grown Children With Autism Across 7 Years

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We examined the extent to which marital satisfaction across 7 years in 199 mothers was associated with the characteristics (gender, age, and intellectual disability status) of their adolescent or adult child with an autism spectrum disorder (ASD) and whether fluctuations in marital satisfaction covaried with the child's autism symptoms, health, behavior problems, and closeness in the parent-child relationship. We also examined the impact of the departure of the adult child out of the family home on mothers' marital satisfaction. The effect of family context variables including the presence of an additional child with a disability, maternal education, and household income on marital satisfaction were also examined. We found that closeness in the mother-child relationship and household income had a significant effect on level of marital satisfaction, and that variability in the slope of mothers' marital satisfaction was significantly predicted by fluctuations in the behavior problems of the adolescent or adult child with an ASD. The grown child's departure out of the family home was not related to change in marital satisfaction. Interventions aimed at managing the behavior problems of adolescents and adults with ASDs may help strengthen parents' marital relationship.

*Keywords:* autism spectrum disorders, parents, marital satisfaction, parent-child relationship

The lives of parents and their children with autism spectrum disorders (ASDs) often remain closely connected even after the son or daughter is grown. Because of the lifelong nature of autism symptoms (i.e., difficulties communicating and relating to others, and repetitive/rigid behaviors), co-occurring behavior problems (e.g., inattention, impulsivity, and depressed and anxious affect), and health concerns, individuals with ASDs commonly continue to live with parents into adulthood (Seltzer, Krauss, Orsmond, & Vestal, 2000). Moreover, parents of adolescents and adults with ASDs report a high level of daily childcare responsibilities and parenting stress (Abbeduto et al., 2004; Smith et al., 2010). Even when parents do not coreside with their adult child with an ASD, they remain highly involved in their son or daughter's life (Krauss, Seltzer, & Jacobson, 2005). The life course perspective concept of *linked lives* proposes that the lives of partners in salient relation-

ships, such as parents and children, are linked in mutually influential ways; the life circumstances and well-being of one partner influences the emotional and relational well-being of the other partner (Elder, Johnson, & Crosnoe, 2003). Given their uniquely involved parenting role, the links between parents' emotional and relational well-being and the life circumstances of grown children with ASDs may be particularly strong. Indeed, studies have documented that mothers' psychological well-being covaries with fluctuations in the autism symptoms and behavior problems of their adolescent and adult children with ASDs over time (Barker et al., 2010; Lounds, Seltzer, Greenberg, & Shattuck, 2007). In contrast, there have been no empirical investigations of the ways in which the life circumstances of the adolescent or adult child with an ASD are interconnected with parents' marital relationship.

There is substantial evidence from research on the general population that marital satisfaction and child circumstances are reciprocally related. For example, the transition to parenthood triggers an increased rate of decline in marital satisfaction (Lawrence, Cobb, Rothman, Rothman, & Bradbury, 2008), and the transition to "emptying the nest" (i.e., grown children leaving the family home) can trigger an increase in marital satisfaction as parents have more time to focus on their marital relationship (Gorchoff, John, & Helson, 2008). Moreover, high levels of parenting demands (Benzies, Harrison, & Magill-Evans, 2004) and an increased level of child behavior problems have been shown to predict increased marital conflict (Jenkins, Simpson, Dunn, Rasbash, & O'Connor, 2005). Marital conflict, in turn, has been found to precede increases in child behavioral problems and academic difficulties (Davis, Harold, Goeke-Morey, & Cummings, 2002; Grych, Harold, & Miles, 2003). The quality of spousal interactions has also been found to positively predict the quality of next-day parent-child interactions in families of typically developing children and adolescents (Almeida, Wethington, & Chandler, 1999).

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This article was published Online First August 6, 2012.

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We thank the families who participated in this study for their ongoing support. This research was supported by grants from the National Institutes of Health (R01 AG08768 to M. Seltzer; P30 HD03352 to M. Seltzer; T32 HDS07487 to L. Abbeduto) and the Autism Society of Southeastern Wisconsin.

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Thus, there is abundant evidence that marital quality is both shaped by child circumstances and well-being and serves as a determinant of child well-being.

Only a handful of studies have examined the marital relationship of parents of children with ASDs. Evidence from these studies indicates that parents of younger children with ASDs have more varied (i.e., significantly greater range in scores) and a slightly lower average level of marital satisfaction than parents of children without disabilities (Lee, 2009). Parents of children with ASDs were shown to have a similar risk of divorce as parents of children without disabilities early on (Freedman et al., 2011; Hartley et al., 2010), but a higher risk of divorce when the son or daughter with an ASD is an adolescent or adult (Hartley et al., 2010). There is evidence from families of younger children with developmental disabilities, that child factors are related to marital satisfaction. In cross-sectional studies, the severity of the young child's behavior problems was found to be negatively correlated with parents' marital satisfaction (Baker, Blacher, & Olsson, 2005; Simmerman, Blacher, & Baker, 2001). Only one cross-sectional study has examined child variables in relation to marital satisfaction within families of adolescents or adults with ASDs. In our ongoing study, we found a negative relationship between closeness in the father-child relationship and marital satisfaction in 91 fathers of adolescents and adults with ASDs (Hartley, Barker, Seltzer, Greenberg, & Floyd, 2011). A longitudinal investigation is now needed to determine whether closeness in the parent-child relationship, as well as the child symptoms and behaviors (i.e., autism symptoms, behavior problems, or health symptoms), fluctuate across time together with changes in marital satisfaction, as is proposed by the *linked lives* concept. Moreover, research is needed to identify how characteristics of the son or daughter, such as gender, age, and intellectual disability status, influence level of marital satisfaction.

There is also a need to understand the impact of "emptying the nest" or having the grown child with an ASD move out of the family home on marital satisfaction, as this transition may have different implications in the context of having a child with an ASD. In contrast to the normative experience, adults with ASD who move away from their family home are often not launching into their own independent lives but often to supported community residences (e.g., group homes or supported independent living), and this transition can be difficult for parents (Baker & Blacher, 2002; Krauss et al., 2005). Moreover, parents tend to remain involved in care activities and decisions even when their adult son or daughter with a disability lives outside of the family home (Seltzer, Greenberg, Krauss, & Hong, 1997). Thus, although mothers report that daily parenting burden decreases after the departure of the adult child with a disability out of the family home, their symptoms of depression do not improve after this departure (Barker et al., 2010; Seltzer et al., 1997).

The lives of parents and their grown children with ASDs are embedded within a broader family context which may also contribute to marital satisfaction. Because of the genetic etiology of ASDs, parents of children with ASDs are at risk of having an additional child with a disability or mental health condition (e.g., Bolton et al., 1994; Piven et al., 1990). Caring for multiple children with disabilities or mental health conditions has been shown to take a toll on mothers' physiological health (Orsmond, Lin, & Seltzer, 2007) and may add to overall family stress, placing couples at risk for marital discord. In addition, education level and

household income have been shown to be determinants of marital satisfaction in the general population (Bramlett & Mosher, 2002), as financial stress can contribute to overall family stress. Education and household income may be particularly important determinants of marital adjustment in parents of grown children with ASDs, given that families with better financial resources can afford the numerous services and supports for their grown child with an ASD and thus reduce parenting and other family stress.

The first goal of the present study was to examine the extent to which marital satisfaction was associated with stable child characteristics and covaried across a 7-year period together with fluctuations in the grown child's autism symptoms, health, and behavior problems, as well as closeness in the parent-child relationship. We also examined the effect of having a grown child with an ASD depart from the family home on maternal marital satisfaction. Finally we also examined the effects of having an additional child with a disability, maternal education, and household income on marital satisfaction. We hypothesized that on occasions when the adolescent or adult's autism symptoms and behavior problems were less severe, and his or her health was better, mothers would experience higher marital satisfaction. Mothers' marital satisfaction was also expected to covary with closeness in the parent-child relationship such that on occasions when parent-child closeness was higher, marital satisfaction would also be higher. The grown child with an ASD moving out of the family home was expected to be associated with an increase in marital satisfaction. We also hypothesized that having more than one child with a disability and lower educational level and household income and would be related to a lower level of marital satisfaction.

## Method

### Participants

Data for the present analyses were drawn from an ongoing longitudinal study originally involving 406 families of adolescents and adults with an ASD (Seltzer et al., 2003; Seltzer et al., 2011). Inclusion criteria for the study were having a child with an ASD aged 10 years or older at the start of the study, who had received an ASD diagnosis from an educational or health professional and who met cut-off scores for ASD on a researcher-administered Autism Diagnostic Interview-Revised (ADI-R; Lord, Rutter, & Le Couteur, 1994). Families were recruited through local media advertisements, newsletters to disability organizations, brochures and postings in clinics, and disability listserves. Families lived in Wisconsin ( $n = 202$ ) and Massachusetts ( $n = 204$ ), and recruitment and data collection methods were identical across the sites. There were a total of five data collection time points between 1998 and 2008. The present analyses are based on data collected at Times 2 (2001) through 5 (2008), as Time 2 was the first time that data on marital satisfaction were collected. Approximately seven years elapsed between Time 2 and Time 5 ( $M = 6.98$ ;  $SD = 0.35$ ). At each wave of measurement, mothers completed standardized self-administered questionnaires and in-home interviews that typically lasted 2 to 3 hours.

Figure 1 presents information on mothers who were excluded from or dropped out of the study before Time 2. Of the original 406 families, 14 were excluded because the primary respondent was the father (as opposed to the mother) and 56 mothers dropped

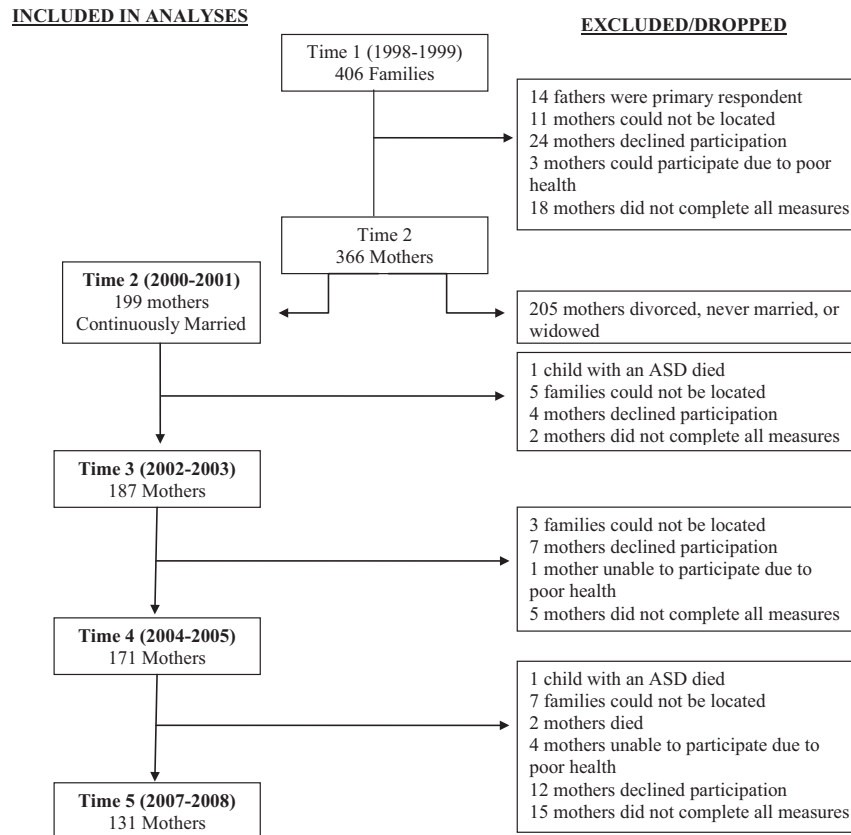


Figure 1. Flow chart of participants who were included and excluded from analyses.

out of the study before Time 2 (14%). The mothers who dropped out of the study had a lower household income than did the mothers who remained in the study,  $t(395) = 5.12, p < .03$ , but these groups were similar in child demographic characteristics (intellectual disability status and gender), child health, autism symptoms, behavior problems, closeness in the parent-child relationship, and marital status. Of the 336 mothers for whom we had data at Time 2, we only included the 199 mothers who were continuously married to the father of the child with an ASD in the present analyses to eliminate the effect of divorce or remarriage on marital satisfaction, in line with previous studies of change in marital satisfaction (Anderson, Van Ryzin, & Doherty, 2010). Moreover, an investigation of divorce in our study has already been published (Hartley et al., 2010). These 199 mothers had a higher family income,  $t(335) = 4.32, p = .04$  and their child with an ASD was younger,  $t(335) = 5.32, p = .02$  compared with mothers who did not remain married to the father of the child with an ASD (i.e., never married, divorced/separated, or widowed). There were no significant differences between these groups in child demographic characteristics (intellectual disability status and gender), child health, autism symptoms, behavior problems, and closeness in the parent-child relationship.

Table 1 presents the sociodemographic characteristics of the 199 mothers in the present analyses. The average age of mothers was 49 years, nearly all were Caucasian, and their median household income was \$60,000 to \$69,999. The average child with an ASD

was 20 years, most were male and had intellectual disability, and the majority coresided with parents at Time 2. This sample of families is more educated, has a higher household income, and is underrepresentative of ethnic minority groups compared with the U.S. population (U.S. Census Bureau, 2011), and likely the population of families of children with ASDs.

Figure 1 also presents information on the 68 mothers who dropped out of the study between Time 2 and Time 5. Of the 199 mothers at Time 2, data were available for 187 mothers at Time 3, 171 mothers at Time 4, and 131 mothers at Time 5. The 131

Table 1  
Sample Characteristics at Time 2 ( $n = 199$ )

Mothers	
Age in years, $M (SD)$	49.38 (8.97)
Range	32–76
Associate/BA degree, $n (%)$	82 (58.6%)
White, $n (%)$	131 (93.6%)
Family income $\geq$ \$80 K, $n (%)$	105 (75.0%)
Additional child with disability	48 (24.1%)
Adolescent or adult with ASD	
Age in years, $M (SD)$	20.18 (67.63)
Range	12.1–47.7
Male, $n (%)$	140 (70.1%)
Intellectual disability, $n (%)$	118 (59.0%)
Co-residing with parents, $n (%)$	135 (64.3%)

mothers who remained in the study through Time 5 were younger ( $t(198) = 1.72, p = .04$ ) and had higher family income,  $t(198) = 2.67, p = .01$ , than the mothers who dropped out of the study before Time 5. There were no significant differences between these groups in child demographic characteristics (intellectual disability status and gender), child health, autism symptoms, behavior problems, closeness in the parent–child relationship, or marital satisfaction.

## Measures

**Child and family demographic information.** The child's gender was reported by mothers and coded as male (0) and female (1). The child's age was reported by mothers and coded in years. The child's intellectual disability was assessed through the Wide Range Intelligence Test (Glutting, Adams, & Sheslow, 2000), a measure of cognitive functioning, and the Vineland Screener (Sparrow, Carter, & Cicchetti, 1993), a measure of adaptive behavior. Individuals who received a score below 75 on both measures were classified as having intellectual disability. Clinical consensus based on review of available records (historical assessments; parent report; school records) was used to determine intellectual disability status if an individual received a score below 75 on only one of the two measures or if there was missing data on one or both measures.

Presence of an additional child with an ASD, developmental or learning disability, or mental health condition was reported by mothers. Mothers reported household income at Time 2, which was coded 0 to 13, starting at less than \$20,000 (0) and increasing by \$5,000 intervals.

**Child health.** Mothers rated their child's health at each data collection time point using the single item "How would you rate the overall health of your child at the present time?" A four-point rating scale ranging from 1 (*poor*) to 4 (*excellent*) was used. Qualitative studies have shown that single item subjective ratings of health such as the item used in this study provide a comprehensive summary of the multiple factors which people view as part of their health (Herzlich, 1973). Moreover, single item subjective ratings of health have been shown to be valid assessments of concurrent health (e.g., diseases and symptoms, health care utilization, and medication use) and are predictive of mortality (Idler & Benyamini, 1997; Pinquart, 2001).

**Child autism symptoms.** The severity of the child's autism symptoms was rated at each point of data collection using the ADI-R, an investigator-driven interview conducted with mothers. The ADI-R diagnostic algorithm has good test–retest reliability, diagnostic validity, convergent validity, and specificity and sensitivity (Hill et al., 2001; Lord et al., 1997). The 33 items from the ADI-R diagnostic algorithm applicable to adolescents and adults were used in the present analyses, rated for current symptom severity. Interviewers participated in an approved ADI-R training program and interrater agreement on items between interviewers and two supervising psychologists who are research reliable on the ADI-R averaged 89%; the average Kappa was .81 ("very good agreement"; Dawson & Trapp, 2004). A summary score was calculated by summing the Communication, Social Reciprocity, and Repetitive Behaviors/Stereotyped Interest domain scores. Verbal items were excluded so that data from nonverbal individuals with ASD could be included. The coefficient alpha values ranged

from .82 to .87 across the four measurement points in the present sample.

**Child behavior problems.** Mothers completed the Behavior Problem subscale of the Scales of Independent Behaviors-Revised (SIB-R; Bruininks, Woodcock, Weatherman, & Hill, 1996) at each data collection time point. Mothers rated the frequency from 1 (*less than once a month*) to 5 (*one or more times an hour*) and severity from 1 (*not serious*) to 5 (*serious*) of their son or daughter's *behavior problems* in the past 6 months. Standardized algorithms (Bruininks et al., 1996) were used to translate the frequency and severity ratings into an overall summary score. The SIB-R has been shown to have excellent reliability and validity (Bruininks et al., 1996), high convergent validity (Greenberg, Seltzer, Hong, & Orsmond, 2006), and moderate stability across the 7-year period (Baker, Smith, Greenberg, Seltzer, & Lounds, 2011) in our larger sample of mothers of adolescents and adults with an ASD.

**Child residence.** Mothers reported on the place of residence of their child at each data collection time point. Residence was coded as residing with mother (0) or in an alternative setting (1) such as a group home or living independently. This coding allowed us to examine the impact of the child's departure from the family home on mothers' marital satisfaction.

**Closeness in the parent–child relationship.** Perceptions of *closeness in the mother–child relationship* were assessed through the Positive Affect Index (PAI; Bengston & Schrader, 1982) at each point of data collection. The PAI is a 10-item scale in which there are five items asking the mother to rate her feelings of trust, intimacy, understanding, fairness, and respect toward her child and five items asking the mother to rate the extent to which her child displays these same feelings toward her. Items are rated on a six-point scale from 1 (*not at all*) to 6 (*extremely*) and are summed to create a total score. The PAI was found to have strong construct and discriminant validity in the general population (Bengston & Schrader, 1982), high internal consistency (.89) in mothers of adults with intellectual disability (Essex, 2002), and had high internal consistency (.88) in our sample of mothers of adolescents and adults with an ASD (Hartley et al., 2011).

**Marital satisfaction.** Marital satisfaction was measured using items from the Marital Satisfaction Questionnaire for Older Persons (MSQFOP; Haynes et al., 1992). Although the MSQOP was designed for older adults (50s and above), items are consistent with commonly used measures of marital satisfaction for younger and middle-aged adults (Locke & Wallace, 1959; Spanier, 1976). Only six of the 20 items on the MSQFOP were administered at all data collection points; these six items were selected because they correlated highly with the 20-item total score in a general population sample (Haynes et al., 1992) and in our sample at Time 2 ( $r = .97$ ). The six items loaded highly (above .83) on the MSQFOP satisfaction with spousal communication and companionship factor (e.g., day-to-day support and encouragement and how well spouse listens). Items were rated on a six-point scale ranging from 1 = *very dissatisfied* to 6 = *very satisfied*. Coefficient alphas ranged from .94 to .96 across the four times of measurement.

## Data Analytic Plan

Problems of missing individual items on scale scores were minimal (6% of mothers had an individual item missing on a measure). In all cases, at least 90% of the items on the scale had

been completed and the mean score was imputed for the missing item. Multilevel modeling using the hierarchical linear modeling program (HLM; Raudenbush, Bryk, Cheong, & Congdon, 2004) was used to examine average rate of change in marital satisfaction across the 7-year period, the effect of child and family context variables on between-person differences in level of marital satisfaction at the outset of the study and the extent to which within-person fluctuations in marital satisfaction (slope) related to changes in the grown child's autism symptoms, behavior problems, and health, closeness in the parent-child relationship, and departure of the child out of the family home. In all models, Level 1 (within-person) continuous variables were group-mean centered and Level 2 (between-person) continuous variables were grand-mean centered. In the unconditional HLM model examining the average rate of change over time in marital satisfaction, data from all 199 participants were used to calculate the intercept and slope of marital satisfaction; cases with complete data were weighted more heavily in the estimation of slope (i.e., the average slope is used for cases that are missing later time points) (Singer & Willett, 2003). In models that included time-varying covariates, listwise deletion was used if someone was missing a value on a time-varying covariate.

## Results

### Descriptive Statistics and Correlations

The means and standard deviations across the four time points for marital satisfaction and the child variables are presented in Table 2. Autocorrelations for marital satisfaction and the child time-varying variables were significant ( $p < .01$ ) and indicated moderate to high levels of stability across the study period (marital satisfaction  $r_s = .64$  to  $.83$ ; autism symptoms  $r_s = .69$  to  $.85$ ; behavior problems  $r_s = .52$  to  $.71$ ; health  $r_s = .67$  to  $.78$ ; closeness in the parent-child relationship  $r_s = .57$  to  $.75$ ; place of residence  $r_s = .64$  to  $.87$ ).

We also examined the correlations of marital satisfaction with maternal and child sociodemographic factors and child time-varying variables at each point of data collection. Marital satisfaction was significantly positively correlated with maternal age at Time 3 and Time 4 ( $r = .13$  to  $.23$ ,  $p < .05$ ). Marital satisfaction was significantly positively correlated with maternal education at Time 2, Time 3, and Time 4 ( $r_s = .19$  to  $.26$ ,  $p < .01$ ), and was

significantly positively correlated with household income at Time 2, Time 3, and Time 4 ( $r = .16$  to  $.19$ ,  $p < .05$ ).

Marital satisfaction was not correlated with child gender or intellectual disability status but was significantly negatively correlated with child age at Time 2 ( $r = -.24$ ,  $p = .03$ ) and Time 3 ( $r = -.22$ ,  $p = .04$ ). Marital satisfaction was significantly negatively correlated with child behavior problems at Time 2, Time 3, and Time 4 ( $r_s = -.32$  to  $-.25$ ,  $p < .01$ ), positively correlated with child health at Time 4 ( $r = .31$ ,  $p = .01$ ), positively correlated with closeness in the parent-child relationship at Time 3 and Time 4 ( $r_s = .25$  to  $.30$ ,  $p < .05$ ), and positively correlated with the residential placement of the grown child with an ASD at Time 3 and Time 4 ( $r = .25$  to  $.31$ ,  $p < .05$ ). Marital satisfaction was not significantly correlated with autism symptoms at any of the time points. Table 3 presents the correlations among marital satisfaction and the child variables at Time 2 and Time 5.

### Time Slope of Marital Satisfaction

Univariate distributions for marital satisfaction were examined separately for each time point; skew (ranging from  $-0.90$  to  $-0.73$ ) and kurtosis (ranging from  $-0.04$  to  $0.42$ ) values indicated that assumptions of normality in the distribution of scores were not violated (Dawson & Trapp, 2004). We examined the average pattern of change in marital satisfaction across the 7 years using linear growth modeling. Maternal age was entered in Level 2 to account for differences in maternal age at the start of the study. Time was coded in years (Time 2 = 0, Time 3 = 1.57, Time 4 = 3.66, Time 5 = 6.97). There was an average linear pattern of decreased marital satisfaction across the 7-year period (Coefficient =  $-0.07$ ,  $SE = 0.03$ ). Thus, on average, mothers became slightly less satisfied in their marriages across the 7 years. There was no significant effect of maternal age. We then ran the model using a quadratic term; there was not a significant quadratic time-slope effect.

### Child Characteristics and Life Circumstances

The variance component for the time slope of marital satisfaction was significant ( $SD = 12.83$ ,  $p < .01$ ), indicating that variability in marital satisfaction trajectories existed among the participants. We examined the between-person effects of stable child characteristics (gender, age, and intellectual disability status) on the intercept of marital satisfaction (at the outset of the study

Table 2  
Means and Standard Deviations for Marital Satisfaction and Time-Varying Child Context Variables

Variables	Time 2		Time 3		Time 4		Time 5	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Marital satisfaction	27.29	6.43	27.21	6.55	27.53	6.70	26.96	6.80
Within-person child context predictors								
Child autism symptoms	23.73	8.63	22.94	8.39	22.69	9.50	23.27	9.86
Child behavior problems	112.66	9.62	113.31	9.99	111.29	9.72	111.19	10.95
Child health	2.26	0.69	2.23	0.69	2.06	0.68	1.99	0.72
Parent-child relationship closeness	45.66	7.01	45.44	7.16	46.53	7.19	45.33	8.99
Residing outside of family home	0.35	0.48	0.38	0.49	0.43	0.50	0.53	0.50
<i>n</i>	199		187		171		131	

Table 3  
Intercorrelations Among Marital Satisfaction and Child Variables at Time 2 (Not Shaded) and Time 5 (Shaded)

Variable	Marital satisfaction	Autism symptoms	Behavior problems	Health	Parent-child relationship	Co-reside with parents
Marital satisfaction	.61**	.04	-.20*	.21*	.18*	.24**
Autism symptoms	.02	.74**	.34**	-.11	-.23**	.14
Behavior problems	-.13	.25*	.58**	-.32**	-.39**	.07
Health	.17*	-.15*	-.17*	.53**	.16	.08
Parent-child relationship	.14*	-.16*	-.35**	.21**	.72**	-.03
Co-reside with parents	.07	.15*	.06	-.09	-.02	.66**

\*  $p < .05$ . \*\*  $p < .01$ .

period) and the associations of the adolescent or adult child's autism symptoms, behavior problems, health, closeness in the parent-child relationship, and departure out of the family home with the intercept of marital satisfaction and variance in the slope from the average trajectory (see Table 4). At Level 1 in the multilevel model, the child time-varying variables (autism symptoms, health, behavior problems, parent-child relationship, and coresidence status) were group-mean centered and entered as fixed or nonrandomly varying predictors of marital satisfaction. The Level 1 effects examined the within-person associations of these child time-varying variables with marital satisfaction at each data collection time point. At Level 2, child characteristics (gender, age, and intellectual disability status) and the average levels of each time-varying child variable were entered to examine the effects of between-person differences on level of marital satisfaction. This also allowed us to control for these between-person effects of child variables on marital satisfaction to properly iden-

tify the within-person time-varying effects (Hoffman & Stawski, 2009).

There was a significant between-person effect of closeness in the parent-child relationship on the intercept (initial level) of marital satisfaction. Mothers who felt closer to their adolescent or adult child with an ASD, on average over the 7 years, felt more satisfied with their marital relationship at the beginning of the study. There was not a significant between-person effect of child age, gender, intellectual disability status, autism symptoms, health, behavior problems, or coresidence with parents on the intercept of marital satisfaction. At the within-person level, behavior problems significantly covaried with maternal satisfaction. On average, on occasions when the grown child's behavior problems were higher, mothers' marital satisfaction was lower than at it was at other time points. The adolescent or adult child's autism symptoms, health, closeness in the parent-child relationship, or departure out of the family home did not significantly covary with marital satisfaction.

Table 4  
Multilevel Models of Within-Person Associations of Child Characteristics and Life Circumstances and Family Context Variables With the Time Slope of Marital Satisfaction

Variables	Marital satisfaction	
	Coefficient	SE
Initial status intercept time 1 (Random)	27.72**	0.91
Maternal age	0.03	0.06
Household income	0.29*	0.14
Child gender (1 = daughter)	0.51	0.86
Child ID status (1 = ID)	-1.07	0.94
Child age	-0.02	0.07
Other children with disabilities	-1.09	1.03
Mean autism symptoms	0.09	0.06
Mean behavior problems	-0.08	0.06
Mean child health	0.03	0.61
Mean parent-child relationship closeness	0.14*	0.06
Linear rate of change time slope (random)	-0.12+	0.07
Child autism symptoms	-0.04	0.04
Child behavior problems	-0.07*	0.03
Child health	-0.04	0.37
Parent-child relationship closeness	0.08	0.05
Residence (1 = outside of family home)	1.24	0.91
Variance components (SD)		
Intercept	28.71 (5.36)**	
Time slope		
Level 1 effect	12.32 (3.51)**	

\*  $p < .05$ . \*\*  $p < .01$ .

## Family Context

The between-person effects of the presence of an additional child with a disability, maternal education, and household income on the intercept of marital satisfaction were tested in the same model (see Table 4). There was a significant effect of household income on marital satisfaction. The household income coefficient of .33 indicates that marital satisfaction was six points higher for mothers who had a household income of one standard deviation (\$30,000) above the mean (\$40,000 to \$45,000). There was not a significant effect of having another child with a disability on the intercept of marital satisfaction.

## Discussion

The lives of parents remain closely tied to that of their adolescent and adult children with ASDs. In line with the concept of *linked lives* (Elder et al., 2003), parents' emotional well-being has been shown to fluctuate with changes in the symptoms and behavior problems of the adolescent or adult child with an ASD (Barker et al., 2010). The present study built on these findings by providing the first examination of the extent to which mothers' marital satisfaction covaried across a 7-year period with changes in the life circumstances of their adolescent or adult child with an ASD, and the influence of child characteristics and family context variables.

Our findings indicate that maternal marital satisfaction is associated with some but not other life circumstances of the grown

child with an ASD. Our findings indicated that, on average, mothers' marital satisfaction declined somewhat across the 7-year study period, which is consistent with patterns evident in the general population (Umberson et al., 2005; VanLaningham, Johnson & Amato, 2001). However, there was significant deviation from this average trajectory of marital satisfaction, and aspects of changes in the child's life were associated with fluctuations in marital satisfaction. In contrast to our hypothesis, changes in the grown child's autism symptoms and health were not significantly related to variability in the slope of maternal marital satisfaction in the current study. Thus, mothers' marital satisfaction did not appear to influence or be influenced by changes in the health or autism symptoms of the adolescent or adult with ASD. In contrast, variability in the slope of mothers' marital satisfaction was significantly related to fluctuations in the behavior problems of their grown child with an ASD. On occasions when the grown child's behavior problems were less severe, mothers experienced higher marital satisfaction.

The unique linkage between the behavior problems of the adolescent or adult with an ASD and mothers' marital satisfaction in the current study may reflect the particularly stressful nature of behavior problems (e.g., inattention and anxious mood) as compared with health status or autism symptoms. In previous studies, the behavior problems of young children with ASDs were found to account for more variability in parenting stress than the child's health problems or severity of autism symptoms (Hastings et al., 2005; Lecavalier et al., 2005). Similarly, within our broader study, the adolescent or adults' behavior problems were found to be related to perceptions of parenting burden, whereas autism symptoms were not (e.g., Abbeduto et al., 2004).

Findings from the current study suggest that the high level of parenting stress resulting from the adolescent or adult's behavior problems may spill over into marital interactions; mothers may have fewer emotional and psychological resources to thwart arguments and promote positive interactions with their spouse. In addition, increases in the behavior problems of the adolescent or adult with an ASD may create opportunities for couples to disagree on parenting strategies. Previous studies of parents of children without disabilities have found that marital arguments about the child increase after an increase in the child's behavior problems (Jenkins et al., 2005). Findings from the current study suggest that increases in behavior problems of adolescent and adult children with ASD may similarly evoke parental arguments. In turn, negative tension stemming from spousal arguments may make parents more negative and critical in their interactions with their son or daughter with an ASD, as has been shown in the general population (Almeida et al., 1999), and lead to further increases in child behavior problems. In previous analyses using our larger study, we found that increases in maternal criticism predicted increases in the behavior problems of adolescents and adults with ASDs (Baker et al., 2011).

In the current study, closeness in the mother-child relationship was significantly related to mothers' initial level of marital satisfaction; mothers who reported having a closer relationship with their adolescent or adult son or daughter with an ASD also reported a higher level of marital satisfaction. However, within-person change across the 7 years in the mother-child relationship was not significantly associated with change in marital satisfaction. Together, these findings suggest that mothers who have more

negative interactions with their grown child with an ASD also have more negative interactions with their spouse. However, within-person fluctuations across time in the mother-child relationship, which generally involved only small increases or decreases, do not correspond to change in the marital relationship. Thus, it may be that only substantial differences in the mother-child relationship impact parents' marital relationship and vice versa. In the current study, child age, gender, and intellectual disability status were not significantly related to initial level of marital satisfaction. Studies of parenting stress have similarly found that the child's gender and intellectual disability status are not significantly related to parenting stress (Abbeduto et al., 2004; Hartley et al., 2011).

In contrast to the normative increases in marital satisfaction after emptying the nest (Gorchoff et al., 2008), the departure of the adult child with an ASD out of the family home did not trigger a change in marital satisfaction. Previous studies have shown that parents who no longer live with their adult child with a developmental disability continue to actively participate in care decision and report worrying about their child's well-being (Baker & Blacher, 2002; Krauss et al., 2005). Results from the current study suggest that parents of adult children with ASDs may therefore not experience an increased focus on their marriage spouse, and thus there is no change in their marital satisfaction, as is often found in couples of children without disabilities after emptying the nest (Gorchoff et al., 2008). In contrast to our hypothesis, the presence of an additional child with a disability or mental health condition was not significantly associated with level of marital satisfaction. Thus, despite the increased parenting responsibilities resulting from having multiple children with special care needs (Orsmond et al., 2007), there is not an impact on marital satisfaction. In support of our hypothesis, household income was positively related to mothers' initial level of marital satisfaction.

In conclusion, results from the current study indicate that mothers' marital satisfaction covaries across time together with changes in the behavior problems of their adolescent or adult child with an ASD, but not the son or daughter's health, autism symptoms, or the parent-child relationship. Mother's initial level of marital satisfaction was positively related to closeness in the mother-child relationship and household income, even after controlling for maternal education level. There were no significant changes in marital satisfaction after the departure of the son or daughter with an ASD out of the family home. The child's age, gender, and intellectual disability status was not related to mother's initial level of marital satisfaction.

Findings from the current study have important service implications. Our findings demonstrate that parents' marital relationship, in addition to their emotional well-being, is intimately linked to the life of their grown child with an ASD. Thus, there continues to be a need for services for parents during the later parenting years. Unfortunately, family services are almost exclusively focused on parents of young children (Howlin, 2005). Services designed for parents of adolescent and adults with ASDs should include education regarding the associations between parents' marital satisfaction and their son or daughter's behavior problems. Interventions aimed at supporting parents with regard to managing their son or daughter's behavior problems, and encouraging dyadic coping strategies in the face of such challenges, may help strengthen parents' marital relationship. Health providers should also be aware that in families with poor marital quality, there is

also likely to be poor parent–child relationship quality. Finally, policies geared toward providing financial aid to families of children with ASD who have low income may help reduce stress on marriages. This added financial support may not only ease general family stress but also increase access to services for the adolescent or adult with an ASD, which may reduce parenting stress and contribute to positive marital interactions.

The current study has several strengths, including a longitudinal design and relatively large sample of families of adolescents and adults with ASDs. However, there are also several limitations to the current study. We analyzed mothers in their mid- to late-life who remained married to the father of their grown child with an ASD. Although our previous research found moderate mother–father agreement within couples on level of marital satisfaction (Hartley et al., 2011), the course of marital satisfaction and its relation to child context variables may be different for fathers. Further studies are needed to examine the relation between divorce and the symptoms and behaviors of adolescents and adults with ASDs. In addition, our sample predominately consisted of white and well-educated mothers with relatively high household incomes. Moreover, the mothers who dropped out of the study had a lower household income and were older (and some died or experienced health declines such that they could no longer participate in the study) than those who remained in the study. Thus, findings may not generalize to mothers of lower SES status and ethnic minorities and may not be representative of the lives of mothers in their later life (70s and 80s). In our sample, only 2% of families had more than one child diagnosed with an ASD, which is lower than the percentages reported for samples of parents of young children with ASDs (Ozonoff et al., 2011). This difference is likely attributable to the older age of our sample, and the shifts in diagnostic practices surrounding ASD since the 1990s. Within our sample, siblings who would currently qualify for an ASD diagnosis may have received a diagnosis of a learning disability, developmental disability, or mental health condition. However, 24.1% of the families in our sample had another child with a diagnosed mental health condition, learning disability, or developmental disability, which is consistent with findings based on samples of adults with ASDs (Piven et al., 1990).

Data were collected through self-report measures completed solely by mothers, which may have biased the estimates of the true relationship among marital satisfaction and child variables. Future research should include independent ratings of the symptoms and behavior problems of the adolescent or adult with an ASD (e.g., by the adolescent or adult with an ASD, father, or teacher). However, concern over the possibility that shared method variance fully accounts for findings is reduced by our selection of well-established and validated measures. Our measures of autism symptoms (ADI-R) and behavior problems (SIB-R) focused on specific and well-described behaviors as opposed to subjective global ratings, and single item subjective ratings of health have also been shown to be predictive of objective outcomes such as hospital visits, medication usage, and death (Benyamini, 2008).

In the current study, we did not examine the causal direction of the pathways between marital satisfaction and child variables, although the dependent variable in the multilevel model was marital satisfaction. The *linked lives* concept posits that the direction of effects between parent and child well-being is reciprocal (Elder et al., 2003). Within the general population, child behavior

problems have been shown to lead to increases in some aspects of marital quality (e.g., parental arguments about the child) but not others, and similarly some domains of marital quality (i.e., conflict patterns) are predictive of changes in child behavior problems whereas others are not (Cumplings, Davis, & Campbell, 2000; Jenkins et al., 2005). Thus, future research on families of individuals with ASDs should include multidimensional measures of marital quality and elucidate the direction of effects between marital quality and child behavior problems. Finally, marital satisfaction was measured through six items that loaded on a factor related to spousal communication and companionship. More extensive measures of marital satisfaction, including observational measures, as well as measures of other aspects of marital quality are needed to better understand the types of constructive and destructive marital behaviors that are related to changes in the behavior problems of adolescent and adult children with ASDs. In the current study, we found a significant declining trajectory of marital satisfaction in our unconditional model, however, the time slope for marital satisfaction was not significant in full multilevel model. Latent growth curve modeling could be used in future studies to examine the different patterns of change in marital satisfaction, as these analyses may offer new insights into the child and family context factors influencing change in marriages across time.

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Received July 1, 2011

Revision received April 11, 2012

Accepted April 12, 2012 ■

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- *Journal of Experimental Psychology: Applied* (<http://www.apa.org/pubs/journals/xap/>), **Neil Brewer, PhD**, School of Psychology, Flinders University
- *Neuropsychology* (<http://www.apa.org/pubs/journals/neu/>), **Gregory G. Brown, PhD, ABPP**, UCSD School of Medicine and Veterans Affairs San Diego Healthcare System
- *Psychological Methods* (<http://www.apa.org/pubs/journals/met/>), **Lisa L. Harlow, PhD**, Department of Psychology, University of Rhode Island

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