

Observed and Perceived Parental Overprotection in Relation to Psychosocial Adjustment in Preadolescents With a Physical Disability: The Mediation Role of Behavioral Autonomy

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The purpose of this study was to test a mediational model of associations between parental overprotectiveness (OP), behavioral autonomy, and psychosocial adjustment in 68 families with 8- and 9-year-old preadolescents with spina bifida and a demographically matched sample of 68 families with able-bodied children. Measures included questionnaire and observational assessments of parental OP; parent and child reports of behavioral autonomy; and parent, child, and teacher reports of preadolescent adjustment. On the basis of both questionnaire and observational measures of OP, mothers and fathers of children with spina bifida were significantly more overprotective than their counterparts in the able-bodied sample, although this group difference was partially mediated by children's cognitive ability. Across samples, mothers were more likely to be overprotective than fathers. Both questionnaire and observational measures of parental OP were associated with lower levels of preadolescent decision-making autonomy as well as with parents being less willing to grant autonomy to their offspring in the future. For the questionnaire measure of OP, and only for the spina bifida sample, the mediational model was supported such that parental OP was associated with less behavioral autonomy, which was, in turn, associated with more externalizing problems. Findings are discussed in relation to the literature on parenting, autonomy development, and pediatric psychology.

Parental overprotection (OP) is a level of maternal or paternal protection that is excessive, taking into account the developmental level and abilities of the child (Thomasgard, Metz, Edelbrock, & Shonkoff, 1995). Studies that used a variety of research designs and target populations suggest that parental OP can have deleterious effects on the developing child or adolescent (e.g., more symptoms of depression, higher rates of oppositional behavior, and other externalizing behavior problems; Burbach, Kashani, &

Rosenberg, 1989; Cappelli, McGrath, MacDonald, Katsanis, & Lascelles, 1989; Mayes, Handford, Kowalski, & Schaefer, 1988; McFarlane, 1987; Miller, King, Shain, & Naylor, 1992). Although such findings provide important information regarding the potential negative effects of parental OP, we know little about the underlying mechanisms that may explain this association (Lloyd & Miller, 1997). For example, theoretical discussions suggest that parental OP undermines a child's level of independent functioning (e.g., Anderson & Coyne, 1991, 1993; Clay, 1997; Parker, 1983; Sargent, 1983; Thomasgard & Metz, 1993). Unfortunately, few attempts have been made to examine associations between parental OP and developmentally relevant autonomy outcomes or the mediational role of autonomy for relations between OP and psychosocial adjustment.

The purpose of this study was to test a mediational model of associations between parental OP, behavioral autonomy, and psychosocial adjustment (see Figure 1). Specifically, associations between observed and perceived parental OP and psychosocial adjustment were expected to be mediated by the child's level of behavioral autonomy. Given the relevance of the OP and autonomy constructs for families with children who have chronic illnesses (see below; e.g., Anderson & Coyne, 1991; Collins et al., 1996), this study focused on a sample of preadolescents with spina bifida (a congenital birth defect caused by a failed closure of one or more vertebrae during the early weeks of pregnancy, which typically produces urinary, bowel, orthopedic, and neurological difficulties; McLone & Ito, 1998).

An unresolved issue in the OP literature (Fiske, Coyne, & Smith, 1991; Parker, Tupling, & Brown, 1979; Thomasgard &

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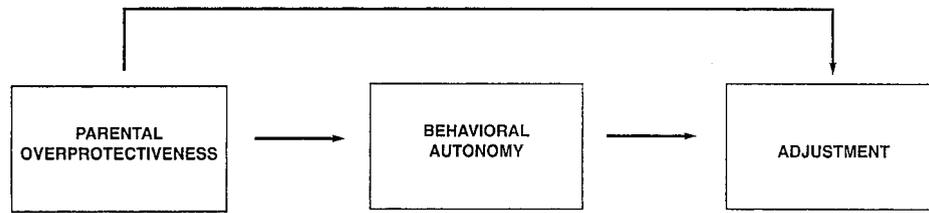


Figure 1. Mediation model of parental overprotectiveness, behavioral autonomy, and psychosocial adjustment.

Metz, 1993) is the degree of overlap between the OP construct and other similar parenting constructs (e.g., parental psychological control, parental intrusiveness; Barber, 1996; Barber & Harmon, 2002; Egeland, Pianta, & O'Brien, 1993; Pomerantz & Eaton, 2001; Schaefer, 1965; Steinberg, 1990). It is our contention that the OP and psychological control constructs are overlapping but nonredundant (Parker et al., 1979; see Figure 2) and that parental intrusiveness accounts for the bulk of the overlap between these two constructs (see Figure 2).

Psychological control has been defined as parenting that does not allow children to express their individuality (Siqueland, Kendall, & Steinberg, 1996; Steinberg, 1990). Parents who use this type of control are intrusive, critical, and often use love-withdrawal or guilt induction to gain compliance (Barber & Harmon, 2002; Holmbeck, Paikoff, & Brooks-Gunn, 1995). In their study of maternal intrusiveness during infancy, Egeland et al. (1993) described an intrusive parent as one who has little regard for the autonomy of his or her offspring (also see Pomerantz & Eaton, 2001). Such behavior on the part of a parent is a defining feature of both the overprotective parent (Anderson & Coyne, 1991, 1993; Coyne, Wortman, & Lehman, 1988; Levy, 1943, 1970; Parker et al., 1979; Thomasgard, Metz, et al., 1995) and the psychologically controlling parent (Barber, 1996; Barber & Harmon, 2002; Schaefer, 1965; see Figure 2). On the other hand, and unlike psychological control, OP (as characterized by several scholars, Becker, 1964; Levy, 1970;

Thomasgard & Metz, 1993) also includes an anxious emotional component, as demonstrated by excessive physical or social contact, infantilization, and excessive concern for the child's well-being. Unlike overprotective parents, psychologically controlling parents can be shaming, manipulative, and guilt inducing (Barber, 1996; Barber & Harmon, 2002). Thus, it appears that the OP and psychological control constructs share some attributes (e.g., intrusiveness) but not all.

Several researchers have examined overprotection in the context of families caring for children who are chronically ill (e.g., children with diabetes, spina bifida). In fact, some have maintained that the most extreme cases of protection may be observed in such families (Anderson & Coyne, 1991, 1993; Bell, 1964; Bowen, 1985; Cairns, Clark, Smith, & Lansky, 1979; Cappelli et al., 1989; Davies, Noll, DeStefano, Bukowski, & Kulkarni, 1991). Thus, to study the full range of OP, it is useful to examine a pediatric sample as well as a typically developing sample. From a developmental psychopathology perspective, studies of atypical populations can provide information about constructs that are of interest to those who study typical development, particularly when the phenomena of interest occur with greater frequency in these atypical populations (Burack, 1997; Cicchetti & Rogosch, 1999).

Why is OP more likely to develop in families with chronically ill children? Most chronic illnesses and physical disabilities require intensive medical management and, as a consequence, place considerable physical, psychological, and social demands on the individuals and families involved (Holmbeck et al., 1997; Kazak, Segal-Andrews, & Johnson, 1995; Quitner, 1992). In such an environment, increased levels of parental protection may be adaptive, as parents attempt to maintain the health of their child and regulate their own exposure to stress. On the other hand, *excessive* (less adaptive) protection may also be more likely to develop in these families. As suggested by Anderson and Coyne's (1991, 1993; also see Coyne et al., 1988) "miscarried helping" formulation, excessive parental protectiveness appears to arise out of an interpersonal process involving both the ill child and the parent. What begins as well-intentioned parental helping is transformed because of the presence of two conflicting parenting responsibilities: the responsibility to ensure that the child remains healthy and adheres to medical treatment regimens *versus* the responsibility to facilitate the child's self-governance skills (Anderson & Coyne, 1993). As the helping process evolves, tension may develop between parent and child as the parent's investment in facili-

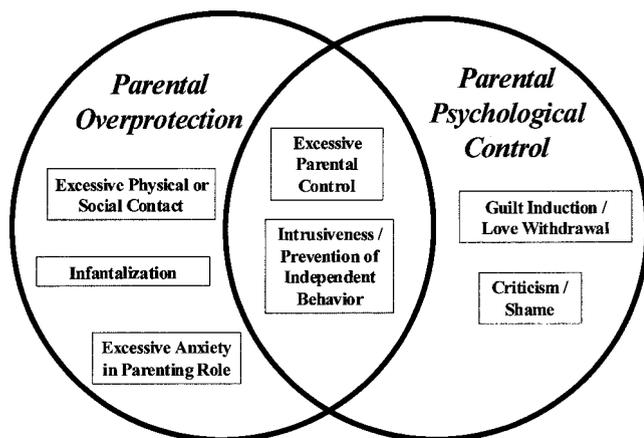


Figure 2. Overlap between components of parental overprotection and parental psychological control.

tating positive health outcomes conflicts with the child's developing autonomy.¹

This interpersonal process is likely to be exacerbated during the transition to adolescence in children with pediatric conditions because of developmentally normative shifts in decision-making responsibilities that occur just before or during this transition (Anderson & Coyne, 1991; Collins, Harris, & Susman, 1995; Collins et al., 1996; Smetana, 1988). According to theory, if decision-making responsibilities fail to shift from parent to child and a parent is extremely overinvolved, demanding, and coercive, the child is likely to become resistant, defiant, and noncompliant *or*, alternatively, depressed and withdrawn (Anderson & Coyne, 1991; Thomasgard & Metz, 1993). Moreover, high levels of parental OP would be expected to undermine a child's level of behavioral autonomy (i.e., the ability to make one's own decisions, Hill & Holmbeck, 1986; Lollar, 1994; Silverberg & Gondoli, 1996). As indicated in Figure 1, such undermining of autonomy is expected to lead to increases in psychosocial maladjustment, particularly in the areas of internalizing and externalizing symptoms, social withdrawal, and self-esteem (Barber, 1996; Barber & Harmon, 2002; Burbach et al., 1989; Cappelli et al., 1989).

In this study of preadolescents with spina bifida and a demographically matched comparison sample of able-bodied children, it was expected that observed and perceived OP would occur with greater frequency in the spina bifida sample, but the mediational model (see Figure 1) would hold for both samples. Specifically, it was expected that OP would be associated negatively with adjustment in both samples and that this association would be mediated by level of behavioral autonomy. On the other hand, given the potential salience of this parenting construct for children with pediatric illnesses, it was expected that relations among the variables would be more pronounced for the spina bifida sample.

With regard to measurement, and given the lack of attention to fathers' perceptions in the pediatric literature (Drotar, 1997; Kazak et al., 1995; Quittner & DiGirolamo, 1998), maternal *and* paternal reports of OP, autonomy, and adjustment were assessed. In addition, given that most past studies have relied exclusively on retrospective self-report measures of parental (usually maternal) OP (Thomasgard & Metz, 1993), observational assessments of parental OP were used. Finally, child reports of OP, autonomy, and adjustment, as well as teacher reports of adjustment, were also included.

Preadolescents (i.e., children 8- and 9-years old) were the focus of this study for several reasons. First, the middle childhood-preadolescent stage of development has been viewed as the period during which parents and children coregulate the child's behavior, a process that lays the foundation for increased self-regulation in adolescence (Collins et al., 1995). Indeed, children are typically granted some decision-making authority prior to early adolescence (Holmbeck, Westhoven, et al., 2001). Second, in addition to assessing the degree to which children have decision-making authority at this age, we also assessed parents' willingness to grant behavioral autonomy in the future. By assessing children in the preadolescent years, parents would likely report on their future expectations for their child during the early adolescent years. Finally, pubertal development tends to occur earlier in children with spina bifida than in typically developing children (Blum,

1991; Greene, Frank, Zachman, & Prader, 1985). Thus, studying children at ages 8 and 9 permitted an examination of the mediational model without the confounding effect of differences in rates of pubertal development.

Method

Sample

Participants were 68 families with 8- and 9-year-old preadolescents with spina bifida (37 boys, 31 girls; $M = 8.34$ years) and a matched comparison group of 68 families with 8- and 9-year-old able-bodied preadolescents (37 boys, 31 girls; $M = 8.49$ years) who were part of a larger study on the transition to adolescence in families with children who have spina bifida (Holmbeck et al., 1997, 1998; Holmbeck, Shapera, & Hommeyer, 2002). Complete demographic information for both groups is provided in Table 1. A wide range of family incomes was represented in both samples. Most of the child participants were White (91% in the able-bodied group; 82% in the spina bifida group). Although biological mothers from all families from both groups participated in the study, only 55 fathers and step-fathers from the spina bifida group and 52 fathers and step-fathers from the able-bodied group participated.² As can be seen in Table 1, the groups were successfully matched on all 10 demographic variables.

Information on a number of physical status variables for the spina bifida group were obtained on the basis of maternal report (method of ambulation, shunt status) or from information gleaned from the child's medical chart (type of spina bifida, lesion level, number of shunt surgeries). Most of the participating children were diagnosed with spina bifida myelomeningocele (82% myelomeningocele, 12% lipomeningocele, 6% other). Most also had a shunt (71%) and used braces (63%) or a wheelchair (18%) for ambulation (19% were unassisted). With respect to lesion level, 32% had sacral level lesions, 54% had lumbar level lesions, and 13% had thoracic level lesions.

¹ Anderson and Coyne (1991) made a point of distinguishing between OP and miscarried helping in the parent-child relationship. They argued that the former is a "label of blame that carries no information about its origin or about the behavior of a child . . . that might contribute to such a response" (p. 169). They maintained that miscarried helping is a model that is useful in understanding the development of parental overinvolvement and OP. Thus, from their perspective, OP is one potential outcome of a helping process gone awry. We will continue to use the term *overprotective*, acknowledging that we have not fully assessed the process by which or the specific context in which it has developed. Anderson and Coyne (1991) also suggested that behaviors that are labeled as overprotective may actually be an appropriate response in certain situations with certain types of children. On the other hand, because overprotectiveness is a rather pejorative term that signals an excessive level of protection, the coding scheme that we developed requires coders to assess whether levels of parental OP are *excessive* or *extreme* given the child's capabilities.

² Father-absent (i.e., a father was not present in the home) versus father-present homes (i.e., a father was present in the home, although they may *or* may not have participated in this study) were compared across all variables included in this report for each sample separately. The only significant difference to emerge across both samples was for mother report of family income, which was (as expected) higher in the father-present homes for both samples.

Table 1
Demographics: Comparisons Across Samples

Demographic characteristic	Spina bifida	Able-bodied	Statistical test
Child age, <i>M(SD)</i>	8.34 (0.48)	8.49 (0.50)	$t(134) = -1.75$
Maternal age, <i>M(SD)</i>	37.74 (5.19)	37.74 (4.84)	$t(134) = 0.00$
Paternal age, <i>M(SD)</i>	41.02 (5.45)	40.63 (6.50)	$t(105) = 0.33$
Child birth order, <i>M(SD)</i>	2.12 (1.38)	2.06 (1.29)	$t(129) = 0.27$
Maternal report—Income, <i>M(SD)</i>	5.75 (2.57)	5.73 (2.45)	$t(130) = 0.05$
Paternal report—Income, <i>M(SD)</i>	6.24 (2.50)	6.35 (2.22)	$t(105) = -0.24$
Hollingshead SES, <i>M(SD)</i>	43.12 (10.57)	46.46 (10.89)	$t(131) = -1.80$
Child gender			
Male, % (<i>n</i>)	54.4 (37)	54.4 (37)	$\chi^2(1) = 0.00$
Female, % (<i>n</i>)	45.6 (31)	45.6 (31)	
Child ethnicity			
White, % (<i>n</i>)	82.4 (56)	91.2 (62)	$\chi^2(1) = 2.30$
Other, % (<i>n</i>)	17.6 (12)	8.8 (6)	
Marital status			
Two-parent intact, % (<i>n</i>)	80.9 (55)	69.1 (47)	$\chi^2(1) = 2.51$
Nonintact, % (<i>n</i>)	19.1 (13)	30.9 (21)	

Note. $n = 68$ in each sample. All statistical tests were nonsignificant ($p > .05$). Family income was rated on a scale of 1–11 with 1 = < \$10,000, 5 = \$40,000–\$49,999, 10 = \$90,000–99,999, and 11 = > \$100,000. The Hollingshead (1975) four factor index of socioeconomic status (SES) is based on a composite of maternal education, paternal education, maternal occupational status, and paternal occupational status.

The average number of surgeries among those with shunts was 2.50 ($SD = 2.91$).³

As expected, a significant difference was found between the samples on a measure of receptive language (Peabody Picture Vocabulary Test, Revised; PPVT; Dunn & Dunn, 1981), $M = 92.49$ ($SD = 18.49$) for the spina bifida sample, and $M = 108.97$ ($SD = 15.06$) for the able-bodied sample. This finding parallels results based on verbal IQ test scores, insofar as children with spina bifida typically score in the low-average range (e.g., Wills, Holmbeck, Dillon, & McLone, 1990). Because lower receptive vocabulary scores were viewed as part of the symptom presentation in children with spina bifida (much like ambulation difficulties, for example) and because children with spina bifida are typically mainstreamed into classrooms with able-bodied children, no attempt was made to match the samples on this variable. On the other hand, associations between PPVT scores and the variables used in this study were examined (see below).

Sample Recruitment

Participating families in the spina bifida group were recruited from lists provided by four sources: (a) a children's hospital, (b) a children's hospital that cares exclusively for youngsters with physical disabilities, (c) a university-based medical center, and (d) a state-wide spina bifida association. Out of 310 nonoverlapping child names from the four lists of children, 72 families lived too far away to be contacted (more than 120 miles from our laboratory), 56 could not be contacted because of incorrect addresses and phone numbers, 64 declined to participate, 11 had children who did not have spina bifida, 14 had children who turned 10 years old before a family visit could be scheduled, 16 had parents or children who did not speak English, and 9 were eliminated for miscellaneous reasons—thus leaving 68 families. A comparison of children in the participating families with children from families that declined to participate revealed no differences with respect to lesion level, $\chi^2(2, N = 116) = 0.62, p > .05$, or type of spina bifida (myelomeningocele vs. lipomeningocele), $\chi^2(1, N = 119) = 1.63, p > .05$.

Participating families from the able-bodied control group were recruited by contacting schools where the children with spina bifida were enrolled. To obtain a control group the same size as the spina bifida group, it proved unnecessary to contact all possible schools. Instead, a representative listing of schools was chosen on the basis of the following factors: location,

average family income of the surrounding community, and ethnic distribution in the school. The initial list of schools was based on school enrollment information for the first 42 children with spina bifida who agreed to participate in our study. Of these, 24 were ruled out (e.g., the community was too far away to run multiple families in that community given limited funding resources, there was a racial distribution in the school that could have produced matching difficulties). Of the remaining 18 schools, 12 agreed to participate and 6 declined. To obtain the sample used in this study, schools sent home roughly 1700 letters with children in our age range. The low recruitment rate is attributable, at least in part, to the longitudinal nature of the study that was described in detail in the recruitment letter.

Procedure

Assessments of the participating families were conducted by trained graduate- and undergraduate-level research assistants during 3-hr home visits. Parents and children were asked to complete a set of questionnaires

³ Such descriptive data suggest that the spina bifida sample is heterogeneous with respect to severity. A previous report from this project (Hommeyer, Holmbeck, Wills, & Coers, 1999) suggested that functional status outcomes (e.g., degree of involvement in activities, scholastic competence, athletic competence, and attention problems) tend to vary as a function of severity. Although psychological adjustment outcomes (which are the focus of this study) tended not to be related to the severity indicators (Hommeyer et al., 1999), associations between the severity variables and the parenting–autonomy variables used in this report were examined. On the basis of correlational (for number of shunt revisions) and group differences analyses (for shunt status, lesion level, ambulation method, and type of spina bifida), few associations emerged between the severity and parenting–autonomy variables (i.e., 4 of 30 analyses yielded significant effects). Moreover, no identifiable pattern emerged in these findings: Number of shunt revisions was positively associated with parental willingness to grant autonomy, fathers of children with shunts exhibited more OP in the observational sessions, fathers of sacral and thoracic level children exhibited more observed OP, and children who used wheelchairs to ambulate had mothers who displayed more observed OP.

as well as 1 hr of audiotaped and videotaped family interaction tasks, for which they were paid \$50. Questionnaires were read aloud to children; response formats were presented on large laminated cards. Parents were also asked to sign release of information forms for the child's teacher (return rate was 97% in the spina bifida sample and 84% in the able-bodied sample; teachers were paid \$5).

Two tasks from the videotaped family interaction session were coded for level of OP (the order of which were counterbalanced across families): an unfamiliar board game task and a conflict task. For the unfamiliar board game task, families were asked to establish rules for and play an educational game purchased through a mail order catalog (not available for retail purchase). The conflict task was based on a procedure used by Smetana, Yau, Restrepo, and Braeges (1991). During the questionnaire portion of the home visit, parents and child completed the short form of the Issues Checklist (Robin & Foster, 1989), a frequently used measure of parent-child conflict that inquires about parent-child discussions that have taken place over the past 2 weeks across 15 issues. Prior to the beginning of the interaction tasks, research assistants tabulated weighted conflict scores (i.e., Frequency \times Intensity) for each issue for each family member on the basis of questionnaire responses. The 5 issues that received the highest total weighted conflict score across family members were presented to the family for discussion during the conflict task. Family members were asked to select and discuss 3 of the 5 issues for 10 min.

Measures

Questionnaire Measures of Parental Overprotection

To assess the various dimensions of the OP construct (see Figure 2), we used items from two questionnaires. These items were selected because they indexed excessive (rather than normative) levels of protection.

The Child Report of Parental Behavior Inventory (CRPBI). The CRPBI (Schaefer, 1965; Schludermann & Schludermann, 1970; Schwarz, Barton-Henry, & Pruzinsky, 1985) is a 108-item scale that assesses maternal and paternal child-rearing behaviors. The scale includes 18 subscales that tap three second-order factors: acceptance-rejection, firm control-lax control, and psychological control-psychological autonomy. Mothers, fathers, and children completed versions of this measure by rating parents on a 3-point Likert scale (following the rewording procedure used by Schwarz et al., 1985). Because of time considerations, only 44 items from the larger 108-item scale were administered, which included all items from the following subscales: Acceptance (8 items) and Rejection (8 items, reverse scored) from the acceptance-rejection factor; Control (5 items), Enforcement (5 items), and Lax Discipline (5 items, reverse scored) from the firm control-lax control factor; and Intrusiveness (5 items) and Hostile Control (8 items) from the psychological control-psychological autonomy scale. In the current study, only child and parent report on the Intrusiveness subscale was used; other subscales did not tap relevant components of the OP construct (see Figure 2).

Parental Bonding Instrument (PBI). The 25-item PBI assesses the quality of bonding between parent and child across two dimensions: parental care (12 items) and parental overprotection (13 items; Parker et al., 1979). Mothers, fathers, and children responded to 5 of the items from the OP scale on a 3-point Likert scale. Sample items from the child report version include "My (mother/father) likes to baby me," and "My (mother/father) lets me decide for myself" (reverse-scored). These 5 items were chosen because other items included words and concepts too complex for 8- and 9-year-old children or because of redundancy with items from the Intrusiveness subscale of the CRPBI.

To construct the questionnaire measures of OP, we combined mother and child reports of the mother's parenting on the 5 items from the CRPBI and the 5 items from the PBI to assess maternal OP (yielding a 20-item scale across the two respondents and 2 measures). An analogous 20-item scale was constructed for paternal OP. Alphas for maternal and paternal OP across the spina bifida and able-bodied samples ranged from .61 to .69.

Observational Measure of Parental Overprotection

Observational data were coded using a global coding system developed by Johnson and Holmbeck (1995) that is based on a methodology devised by Smetana et al. (1991). As is typically done with global coding schemes, coders viewed an entire family interaction task (on videotape) and then provided Likert-scale ratings on a variety of dimensions. This coding system taps Levy's (1943) four dimensions of OP: (a) parental prevention of independent behavior in the child (which included two codes: nonverbal prevention of exploratory behavior in the child and parental encouragement of child's expression of individual views or opinions; reverse-coded), (b) excessive physical contact with child, (c) infantilization (which included two codes: parental behavior that infantilizes the child and active catering to the child), and (d) excessive parental control (i.e., intrusiveness).⁴ As was the case with the questionnaire items, all codes indexed excessive (rather than normative) levels of parental protection, given the developmental level of the child. Because of low frequencies of occurrence, two codes were dropped from further analysis (i.e., nonverbal prevention of exploratory behavior in the child and excessive physical contact with the child). For the four remaining codes, mother and father behaviors were coded separately (for a total of eight OP codes).

Items were coded on 5-point Likert scales; the manual includes behavioral descriptions for each of the points along the Likert scale. Any score greater than 1 indexed the presence of excessive parental protection. Undergraduate and graduate student coders were trained for roughly 8-10 hr until they had achieved 90% agreement with an expert graduate student coder (during training, agreement was assumed when two codes were within 1 Likert-scale point). All coders were unaware of the specific purpose of the coding system and the hypotheses of this study, but not necessarily of the group status of the child. During training, average coder agreement was 93.6%. During actual coding, all tasks on all tapes were coded by two coders. After coding was completed, the average interrater reliabilities (intraclass correlation coefficients; Suen & Ary, 1989) across coders, tasks, and parents were .78 and .66 for the spina bifida and able-bodied samples, respectively. These values were deemed acceptable in accordance with past recommendations (Hartmann & Wood, 1990; Landis & Koch, 1977). The somewhat lower rater reliability for the comparison sample appears to have been due to the lower frequencies of OP (and lower variability) for this sample. The average internal consistency *scale* alphas for the total OP scale were .80 and .77 for the spina bifida and able-bodied samples, respectively.

Behavioral Autonomy

Decision-Making Questionnaire. To assess behavioral autonomy, we used the Decision-Making Questionnaire, for which respondents (parents and children) were asked to rate their perception of who makes decisions in the family (Steinberg, 1987). Fifteen nonmedical issues were included in this measure, such as when the child has to do homework and what the child is allowed to watch on television. Items were rated in terms of the following: (a) parents tell child what to do; (b) parents and child discuss the issue, but parents have the final say; (c) parents and child discuss the issue, but child has the final say; and (d) the child decides. The average scale alpha across reporters was .81 for the spina bifida sample and .74 for the able-bodied sample. The mean across reporters was used as the index of behavioral autonomy and was scored in the direction of greater behavioral autonomy for the child.

Willingness to Grant Autonomy Scale. An additional measure of behavioral autonomy (Holmbeck & O'Donnell, 1991) was based on mother and father report and assessed the willingness of parents to grant autonomy to adolescents in the future across the same 15 items used in the Decision-

⁴ Copies of the coding system are available on request from Grayson N. Holmbeck.

Making Questionnaire. Items were rated on a 4-point scale ranging from 1 (*I want a lot more control*) to 4 (*I want my child to have a lot more control*). Alphas across reporters averaged .88 for both samples. The mean across reporters was used as the index of behavioral autonomy and was scored in the direction of greater willingness to grant autonomy to the child in the future.⁵

Measures of Psychosocial Adjustment

Internalizing and externalizing behavior problems. Mother and father reports on the Child Behavior Checklist (CBCL; Achenbach, 1991a) were used to measure behavior problems. The teacher report version of this measure, the Teacher Report Form (Achenbach, 1991b), was used to gather teacher data on the same dimensions. The means of maternal, paternal, and teacher report on the Internalizing and Externalizing scales were used in this study (in *T*-score form). With respect to level of behavior problems in this sample, 23.5% and 7.4% of the spina bifida sample had mean *T* scores of 60 or above on the Internalizing and Externalizing scales, respectively. The same percentages in the able-bodied sample were 7.4% and 7.4%. Only two children in the spina bifida sample and only one child in the comparison sample had scores above 60 on both the Internalizing and Externalizing scales; thus comorbidity was relatively rare.

Child depression. Child depressive affect was assessed with child report on the 27-item Children's Depression Inventory (CDI; Kovacs, 1992). All items include 3-point scales reflecting the degree of depressive symptomatology. Internal consistency alphas were .81 and .80 for the spina bifida and able-bodied samples, respectively. The mean CDI score was 8.92 ($SD = 6.71$) in the spina bifida sample and 6.01 ($SD = 4.69$) in the able-bodied sample. These scores are in the average range in comparison with normative data for boys and girls 7–12 years old (Kovacs, 1992). Six children in the spina bifida sample and 1 child in the comparison sample scored above the screening cutoff of 20.

Social acceptance, behavioral conduct, and self-worth. Perceived competence in the areas of social acceptance, behavioral conduct, and self-worth was assessed with child, mother, father, and teacher reports on the child or parent or adult versions of the Self-Perception Profile for Children (Harter, 1985). The 36-item child version is a multidimensional measure of self-concept that taps six domains (6 items in each domain) on a 4-point scale. Parents and teachers completed the shorter 15-item version that tapped the same domains as the child version except self-worth (3 items for each of five domains). Mean alphas for child, mother, father, and teacher report, respectively, for the Social Acceptance and Behavioral Conduct scales ranged from .72 to .79 across samples. The alphas for General Self-Worth (child report only) ranged from .63 to .73. For Social Acceptance and Behavioral Conduct, means of child, mother, father, and teacher report were used.

Data Reduction

As noted earlier, composite scores were based on means across reporters. Such data reduction was necessary to reduce the number of potential analyses and was justified based on moderate intercorrelations among the respondent pairs. Specifically, the mean *r*s among all three possible respondent pairs (child–mother, child–father, mother–father) for the Decision-Making Behavioral Autonomy scale were .34 and .26 for the spina bifida and control samples, respectively. For the Willingness to Grant Autonomy scale, the *r*s between mother and father report were .32 and .39 for the spina bifida and able-bodied samples, respectively. For the Internalizing and Externalizing CBCL scales, the mean *r*s for the six possible respondent pairs were .27 and .28 for the two samples, respectively. The mean *r*s for the Social Acceptance scale were .24 and .20 for the two samples, respectively. Finally, the mean *r*s for Behavioral Conduct were .19 and .38 for the two samples, respectively.

Analysis Plan

Comparisons across the samples for questionnaire and observational OP scores were evaluated with two one-way multivariate analysis of variance (MANOVA) analyses, one for mother data and one for father data (given differences in *n*s across the two parents). Associations between OP (questionnaire and observational) and behavioral autonomy and between OP (questionnaire and observational) and psychosocial adjustment were evaluated for each sample separately with multiple regression analyses.⁶

To determine whether there were mediational pathways, four conditions had to be met (Baron & Kenny, 1986; Holmbeck, 1997, 2002): (1) OP (the independent variable; IV) must be significantly associated with behavioral autonomy (the mediator), (2) the IV must be significantly associated with psychosocial adjustment (the dependent variable; DV), (3) the mediator must be significantly associated with the DV, and (4) the impact of the IV on the DV must be less after controlling for the mediator. Conditions 1 and 2 were assessed with multiple regression analyses (see above), which permitted an examination of the differential predictive utility of the observed versus questionnaire measures of OP. Associations between behavioral autonomy and psychosocial adjustment (Condition 3) were assessed with Pearson correlation coefficients, rather than multiple regression, because we were not necessarily interested in the differential predictive utility of the two types of behavioral autonomy for psychosocial adjustment. The effects for Condition 4 were assessed with additional regressions (when Conditions 1–3 were met). To determine whether the total effect of OP on adjustment was reduced significantly upon introduction of the mediator, we used Sobel's (1982, 1988) significance test.⁷ The percentage of the total effect that was mediated was also computed (MacKinnon & Dwyer, 1993). Analyses based on structural equation modeling were a possible alternative (Holmbeck, 1997), but small sample sizes precluded the use of such data analytic techniques.

⁵ Although the Decision-Making Questionnaire and the Willingness to Grant Autonomy Scale are both included in the behavioral autonomy section, it is worth noting important differences between these two variables. The former taps adolescent decision-making responsibilities, whereas the latter assesses attitudes of the parents, which may or may not translate into gains in adolescent decision making. It is also important to acknowledge that there may be some overlap between the OP and willingness-to-grant-autonomy constructs. On the other hand, the measures of these constructs differ from a temporal perspective. That is, the measures of OP assess current observed or perceived functioning and the measure of willingness to grant autonomy assesses beliefs about what one would like to do in the future. Thus, it is possible that a parent who is rated as excessively protective at the present time may desire to grant more, rather than less, autonomy in the future.

⁶ Alternatively, these analyses could have been done across the samples simultaneously by using Group \times Predictor interaction terms entered after main effects (Holmbeck, 1997). On the other hand, given that our goal was to assess the utility of a mediational model for *each* sample, we wanted to determine whether the paths in Figure 1 were significant for each sample separately; such separate analyses made interpretation more straightforward.

⁷ Sobel's (1982, 1988) significance test is both a test of the indirect effect of OP on adjustment (i.e., the product of the OP \rightarrow mediator and mediator \rightarrow adjustment pathways) and a test of the drop in the total effect of OP on adjustment after accounting for the mediator (i.e., total effect – direct effect). That is, the drop in the total effect is mathematically equivalent to the magnitude of the indirect effect, because total effect – direct effect = indirect effect (MacKinnon & Dwyer, 1993).

Results

This Results section is divided into the following subsections: (a) preliminary analyses, (b) analyses of group differences on the parental OP variables, (c) associations between OP and behavioral autonomy, (d) associations between OP and psychosocial adjustment, and (e) mediational analyses.

Preliminary Analyses

Associations among questionnaire and observational measures of OP. Group-specific correlations among all variables included in the analyses are presented in Table 2. The correlation matrix revealed significant within-method correlations (i.e., questionnaire-questionnaire or observational-observational; range = .35 to .58) and nonsignificant between-method correlations (i.e., questionnaire-observational; range = -.17 to .13) for OP across the two samples. Because of low associations between the questionnaire and observational OP data, these data were analyzed separately in the MANOVAs and regressions.

Associations among measures of OP and psychological control. As noted earlier, the theoretical literatures on OP and psychological control suggest that these constructs are overlapping but nonredundant. To demonstrate that OP is a distinct parenting construct (independent of psychological control) and to determine whether the questionnaire and observational measures of OP have construct validity, we expected to find the following: (a) OP and psychological control should be moderately correlated, (b) OP should be more highly related to psychological control than to other relevant parenting constructs (e.g., acceptance, behavioral control; Barber & Harmon, 2002), and (c) correlational and regression findings for OP should continue to be significant after controlling for psychological control. In general, these conditions were satisfied.

To test these associations, we used questionnaire and observational measures of psychological control, acceptance, and behavioral control from the larger study (see Holmbeck et al., 2002, for details regarding the content and psychometrics of these measures of parenting). Like the observational measure of OP, the observational measure of psychological control was based on global ratings of family interaction (see Siqueland et al., 1996, for a similar approach), except that the coding system (and coding teams) for psychological control was independent of the coding system (and coding teams) for OP. The questionnaire version of psychological control was based on child- and parent-reported scales from the CRPBI (i.e., the Intrusiveness and Hostile Control scales). As noted above, the Intrusiveness scale from the CRPBI and items from the PBI were used to assess OP. In other words, the CRPBI Intrusiveness scale is used to assess both constructs (consistent with the model presented in Figure 2). Thus, in examining relations between the questionnaire versions of OP and psychological control, the Intrusiveness scale was dropped from both measures, and the Hostile Control scale (i.e., psychological control) was examined in relation to the PBI items (i.e., OP).

As expected, significant relations between measures of OP and psychological control were found. Across samples, correlations for the questionnaire and observational measures ranged from .23 to .49 ($M = .40$) for the maternal and paternal scales. Moreover, OP questionnaire and observational measures were more highly associated with measures of psychological control than with other measures of parenting (i.e., acceptance, behavioral control) across samples and across maternal and paternal reports, with few exceptions. Finally, all regression analyses conducted for this study (see below) were rerun, controlling for both the questionnaire and observational measures of psychological control. Across regressions, 12 of the 18 significant effects for OP (see below) remained significant or marginally significant after controlling for these two

Table 2
Correlations Among Parental OP, Behavioral Autonomy, and Adjustment

Measure	1	2	3	4	5	6	7	8	9	10	11	12
1. OP-Quest-M	—	.56***	-.08	-.09	-.33**	-.41***	-.04	.29*	.34**	-.04	-.41***	-.08
2. OP-Quest-F	.35**	—	-.20	.02	-.12	-.42***	-.02	.33**	.39**	-.02	-.20	-.08
3. OP-Obser-M	.13	.12	—	.58***	-.20	-.05	.07	.10	-.01	-.02	-.05	-.06
4. OP-Obser-F	.12	-.17	.42**	—	-.30*	-.29*	.28*	.16	.00	-.18	-.15	-.16
5. Dec-Making Autonomy	-.30**	-.12	.07	-.15	—	.44***	-.02	-.26*	-.26*	.01	.35**	.04
6. Willingness to Grant Autonomy	-.36**	-.28*	-.19	-.02	.40***	—	.07	-.37**	-.24	-.07	.29*	-.07
7. Internalizing Beh Problems	.18	.14	.04	-.14	.16	.06	—	.41***	.23	-.41***	-.04	-.13
8. Externalizing Beh Problems	.27*	.16	.06	.04	-.08	-.16	.41***	—	.36**	-.12	-.65***	-.17
9. Depression	.00	-.08	-.27*	.09	-.12	-.11	.25*	.19	—	-.17	-.44***	-.56***
10. Social Acceptance	-.08	.20	.11	.08	.19	.11	-.36**	-.23	-.23	—	.02	.34**
11. Behavioral Conduct	-.08	-.09	-.18	-.27*	.34**	.16	-.08	-.54***	-.26*	.20	—	.30*
12. Global Self- Worth	-.07	.19	.22	-.21	.12	-.10	-.16	-.12	-.57***	.13	.17	—

Note. Correlations for the spina bifida sample are above the diagonal, and correlations for the able-bodied control sample are below the diagonal. OP = parental overprotectiveness; Quest = questionnaire; M = mother; F = father; Obser = observational; Dec = Decision; Beh = Behavior.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3
Significant Group Differences on OP Variables

Variable	Spina bifida	Able-bodied	Significance	
	<i>M (SD)</i>	<i>M (SD)</i>	MANOVA	Univariate
Maternal OP			4.64**	
Questionnaire	39.04 (5.22)	37.41 (4.43)		3.78*
Observational	15.38 (4.24)	13.77 (3.54)		5.69*
Paternal OP			5.46**	
Questionnaire	36.89 (5.11)	34.54 (4.49)		6.09*
Observational	13.84 (4.23)	12.27 (3.92)		4.29*

Note. Group *ns* = 68. OP = overprotectiveness; MANOVA = multivariate analysis of variance.
* $p < .05$. ** $p < .01$.

psychological control variables. In summary, these analyses lend support to our contention that OP and psychological control are overlapping, but nonredundant, constructs and also support the construct validity of the questionnaire and observational OP measures.

Effects of gender. Gender differences in the analyses reported below were also assessed. In these analyses, Gender \times OP interactions were rarely significant (i.e., 4 of 64 possible interactions were statistically significant). Thus, gender was not included in any subsequent analyses.

Associations with PPVT scores. Because there were group differences on the PPVT scores, correlations between the PPVT and all variables used in this study were computed. Findings revealed few significant associations (i.e., 2 significant *rs* across 24 correlations). That is, although PPVT scores were not significantly associated with any of the autonomy or adjustment variables in either sample, PPVT scores were negatively correlated with observed paternal OP in the spina bifida sample ($r = -.32$, $p < .05$) and the questionnaire measure of paternal OP in the comparison sample ($r = -.26$, $p < .05$). When analyses were run with both groups combined ($N = 136$), PPVT scores were associated (*rs* ranging from $-.23$ to $-.25$, $p < .01$) with all four OP variables (i.e., mother and father observational and questionnaire measures of OP).

Because the PPVT was not significantly associated with any of the autonomy or adjustment variables used in this study, the PPVT was not used as a covariate in the regression analyses.⁸ On the other hand, because the two samples differed on the PPVT and because the PPVT was associated with the OP variables, PPVT scores were used as a covariate in the group differences MANOVA analyses (see below).

Group Differences on Parental OP Variables

Findings in Table 3 reveal significant MANOVAs for questionnaire and observational data for both maternal, $F(2, 130) = 4.64$, $p < .01$, and paternal, $F(2, 99) = 5.46$, $p < .01$, OP data. Specifically, mothers of children with spina bifida exhibited higher levels of OP than mothers from the able-bodied group on both questionnaire, $F(1, 131) = 3.78$, $p < .05$, and observational data, $F(1, 131) = 5.69$, $p < .05$. Similarly, fathers of children with spina bifida exhibited higher levels of OP on both questionnaire, $F(1, 100) = 6.09$, $p < .05$, and observational data, $F(1, 100) = 4.29$, $p < .05$, than fathers of able-bodied children. Given that a score

of 40 on the questionnaire measure indicates that parents and children tended to endorse the "somewhat like" response option (2×20 items = 40), all means in the table suggest that extreme levels of OP were not characteristic of the parents in these samples. Regarding the observational data, a score of 24 indicates that coders had endorsed a score of 3 ("sometimes") for all items, (2 tasks $\times 4$ items) \times (score of 3). Again, we see that respondents and coders do not view excessive protection as highly characteristic of the parents in these samples.

As noted above, the MANOVAs were rerun with PPVT scores used as a covariate. Both MANOVAs for parental OP became nonsignificant ($p > .05$) with PPVT scores controlled ($p = .265$ for the maternal MANOVA and $p = .096$ for the paternal MANOVA). Such findings raise the possibility that PPVT scores may account for the group differences. Put another way, it was possible that verbal ability mediated associations between group status and the OP variables (i.e., group status \rightarrow PPVT \rightarrow OP; Holmbeck, 1997).⁹ This mediational model was tested separately for each of the four OP variables. On the basis of multiple regression analyses, the first three conditions of mediation (see above) were met for all four OP variables (although Condition 3 was marginally significant, $p < .10$, for each of the father OP variables, perhaps because of the lower *n* for these analyses). Condition 4 was examined by testing the significance of the indirect effect (Holmbeck, 2002), by using Sobel's (1982, 1988) equation for the standard error of the indirect effect. Significant mediation ($p < .05$) was found for observed maternal OP ($z > 1.96$), and marginally significant mediation ($p < .10$) was found for the other three OP variables ($z > 1.64$). PPVT scores accounted for between 42% and 47% ($M = 44.2\%$) of the total effect of group status on the four OP variables. In other words, slightly less than half of the group differences on OP were due to differences on the PPVT. Thus, children with spina bifida were more likely to have lower levels of cognitive ability, and children

⁸ In fact, when the regressions were rerun with PPVT scores controlled, all 18 significant effects remained significant at $p < .05$, except 2 (which dropped to $p < .10$).

⁹ If an IV-DV effect is attenuated by a covariate, this does not necessarily indicate that relations among the IV, covariate, and DV are mediational. In the present instance, it seemed plausible that group status would be associated with PPVT scores that would, in turn, be associated with OP scores.

low in cognitive ability were, in turn, more likely to have parents who exhibited higher levels of OP.

Finally, a within-subjects MANOVA comparing the responses of mothers and fathers (not tabled) revealed that mothers are viewed as more overprotective than fathers across both questionnaires, $F(1, 127) = 20.98, p < .001$, and observational data, $F(1, 100) = 12.69, p < .001$, and across samples (i.e., the Group \times Parent interactions were nonsignificant).

Associations Between OP and Behavioral Autonomy

Regression findings for associations between parental OP and the measures of behavioral autonomy are presented in Table 4. Overall, questionnaire and observational measures of OP tended to be negatively (and significantly) associated with both measures of behavioral autonomy across both samples. For mothers in the spina bifida sample, questionnaire data revealed that mothers' level of OP was negatively associated with decision-making autonomy, $\beta = -.34; F(1, 63) = 7.99, p < .01$, and mothers' willingness to grant autonomy in the future, $\beta = -.42; F(1, 61) = 12.80, p < .001$ (see Table 4). Similar findings emerged for the able-bodied sample: Decision-Making Autonomy, $\beta = -.30; F(1, 66) = 6.66, p < .01$; Willingness to Grant Autonomy, $\beta = -.36; F(1, 66) = 10.18, p < .01$. For the spina bifida sample, observational data revealed that mothers' level of OP was associated with less decision-making autonomy, $\beta = -.24; F(2, 62) = 4.09, p < .05$.

Turning to fathers, questionnaire data for the spina bifida sample suggested that paternal OP was associated with less paternal willingness to grant autonomy in the future, $\beta = -.32; F(1, 47) = 5.20, p < .05$. In the able-bodied sample, paternal OP as assessed with questionnaire data revealed that such parenting was associated with less decision-making autonomy, $\beta = -.31; F(1, 50) = 5.40, p < .05$. Finally, observational data for the spina bifida sample revealed that paternal OP was associated negatively with both measures of behavioral autonomy: Decision-Making Auton-

omy, $\beta = -.30; F(1, 48) = 4.68, p < .05$; Willingness to Grant Autonomy, $\beta = -.29; F(2, 46) = 4.67, p < .05$.

Associations Between OP and Psychosocial Adjustment

As indicated in Table 5, findings for associations between the questionnaire measure of maternal OP and the psychosocial adjustment outcomes revealed significant relationships for externalizing symptoms, $\beta = .28; F(1, 63) = 5.38, p < .05$; depression, $\beta = .36; F(1, 59) = 8.66, p < .01$; and behavioral conduct, $\beta = -.40; F(1, 63) = 12.12, p < .001$; in the spina bifida sample. All of these associations were in the direction of more OP being associated with more maladjustment. Similarly, maternal OP as assessed with questionnaire data was associated positively with externalizing symptoms in the able-bodied sample, $\beta = .27; F(1, 66) = 5.24, p < .05$. Contrary to the hypotheses, maternal OP as assessed with observational data was associated with fewer depressive symptoms in the able-bodied sample, $\beta = -.27; F(1, 66) = 5.14, p < .05$ (see Table 5). Data for fathers revealed that paternal OP as assessed with questionnaire data was associated with more externalizing, $\beta = .32; F(1, 48) = 5.65, p < .05$, and depressive symptoms in the spina bifida sample, $\beta = .34; F(1, 44) = 5.67, p < .05$ (see Table 6). Paternal OP as assessed with observational data was associated with more internalizing symptoms in the spina bifida sample, $\beta = .28; F(1, 48) = 4.05, p < .05$, and less appropriate behavioral conduct in the able-bodied sample, $\beta = -.27; F(1, 50) = 3.95, p < .05$.

Mediational Analyses

Potential mediational pathways were isolated by examining the significant findings across Tables 4–6 and the correlational associations between the two behavioral autonomy variables and the psychosocial outcomes in Table 2. To be included as a potential mediational pathway, Conditions 1–3, as described in the *Analysis*

Table 4
Regression Results for Prediction of Preadolescent Autonomy From Questionnaire and Observational Parental OP Variables

Step	Variable	Spina bifida (n = 68)				Able-bodied (n = 68)				
		β	R	ΔR^2	F	Variable	β	R	ΔR^2	F
DV = Preadolescent Decision-Making Autonomy (C, M, F)										
1	OP-Quest-M	-.34	.34	.11	7.99**	OP-Quest-M	-.30	.30	.09	6.66**
2	OP-Obser-M	-.24	.41	.05	4.09*	OP-Obser-M	.11	.32	.01	0.87
1	OP-Obser-F	-.30	.30	.09	4.68*	OP-Quest-F	-.31	.31	.10	5.40*
2	OP-Quest-F	-.06	.30	.00	0.17	OP-Obser-F	-.21	.38	.04	2.50
DV = Parental Willingness to Grant Autonomy (M, F)										
1	OP-Quest-M	-.42	.42	.17	12.80***	OP-Quest-M	-.36	.36	.13	10.18**
2	OP-Obser-M	-.09	.43	.01	0.62	OP-Obser-M	-.14	.39	.02	1.56
1	OP-Quest-F	-.32	.32	.10	5.20*	OP-Quest-F	-.21	.21	.04	2.24
2	OP-Obser-F	-.29	.43	.08	4.67*	OP-Obser-F	-.06	.22	.00	0.18

Note. The OP-Questionnaire variables are based on parental and child report. Beta weights are standardized and indicate the direction of the effect at the step the predictor entered the equation. The ns vary somewhat because of missing values. OP = overprotectiveness; DV = dependent variable; C = child; M = mother, F = father; Obser = observational; Quest = questionnaire.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 5
Regression Results for Prediction of Preadolescent Adjustment From Questionnaire and Observational Maternal OP Variables

Step	Variable	Spina bifida (n = 68)				Able-bodied (n = 68)				
		β	R	ΔR^2	F	Variable	β	R	ΔR^2	F
DV = Internalizing Behavior Problems (CBCL; M, F, T)										
1	OP-Obser-M	.08	.08	.00	0.37	OP-Quest-M	.18	.18	.03	2.31
2	OP-Quest-M	-.04	.08	.00	0.08	OP-Obser-M	.02	.18	.00	0.02
DV = Externalizing Behavior Problems (CBCL; M, F, T)										
1	OP-Quest-M	.28	.28	.08	5.38*	OP-Quest-M	.27	.27	.07	5.24*
2	OP-Obser-M	.13	.31	.02	1.08	OP-Obser-M	.02	.27	.00	0.03
DV = Child Depression (CDI; C)										
1	OP-Quest-M	.36	.36	.13	8.66**	OP-Obser-M	-.27	.27	.07	5.14*
2	OP-Obser-M	.01	.36	.00	0.01	OP-Quest-M	.04	.27	.00	0.11
DV = Social Acceptance (Harter; C, M, F, T)										
1	OP-Quest-M	-.09	.09	.01	0.52	OP-Obser-M	.11	.11	.01	0.86
2	OP-Obser-M	-.03	.09	.00	0.04	OP-Quest-M	-.09	.14	.01	0.55
DV = Behavioral Conduct (Harter; C, M, F, T)										
1	OP-Quest-M	-.40	.40	.16	12.12***	OP-Obser-M	-.18	.18	.03	2.23
2	OP-Obser-M	-.08	.41	.01	0.48	OP-Quest-M	-.06	.19	.00	0.22
DV = Global Self-Worth (Harter; C)										
1	OP-Quest-M	-.10	.10	.01	0.62	OP-Obser-M	.22	.22	.05	3.40
2	OP-Obser-M	-.07	.12	.00	0.29	OP-Quest-M	-.10	.24	.01	0.75

Note. The OP-Questionnaire variables are based on parental and child report. Beta weights are standardized and indicate the direction of the effect at the step the predictor entered the equation. The *ns* vary somewhat because of missing values. OP = overprotectiveness; DV = dependent variable; CBCL = Child Behavior Checklist; M = mother; F = father; T = teacher; Obser = observational; Quest = questionnaire; CDI = Children's Depression Inventory; C = child; Harter = Self-Perception Profile for Children.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Plan section above, had to be met (see Holmbeck, 2002). As indicated in Figure 3, six pathways met these conditions. All six pathways involved the spina bifida group, and all involved OP questionnaire data. Of these six pathways, the Sobel (1982, 1988) *z* test was significant or marginally significant for three of the paths (Paths 2, 5, and 6), indicating that significant mediation was found for these pathways.¹⁰ The "total effect" path coefficients were reduced by an average of 32% after accounting for the mediator. Stated differently, roughly one third of the effect of OP on adjustment was mediated by behavioral autonomy for these significant pathways. Moreover, the three significant pathways all involved some variation of externalizing symptoms. Specifically, maternal OP in families with children who have spina bifida (as assessed with questionnaire data) was associated negatively with decision-making autonomy and a willingness to grant autonomy in the future. Less autonomy was, in turn, associated with more externalizing symptoms and less appropriate behavioral conduct. The same finding emerged in the spina bifida sample for paternal OP (questionnaire) and a willingness to grant autonomy (see Figure 3).

Discussion

The purpose of this study was to test a mediational model of associations among parental OP, behavioral autonomy, and

psychosocial adjustment. Findings based on questionnaire and observational data revealed that adolescents with spina bifida were more overprotected by their mothers and fathers than were their able-bodied peers, although a significant portion of this association between group status and OP was mediated by children's cognitive ability. Across both samples, mothers were more likely to be overprotective than were fathers. Moreover, OP tended to be negatively associated with behavioral autonomy regardless of the sample or assessment method, suggesting that interpretations based on common method variance are not warranted. Partial support was found for the mediational model, but only for the spina bifida sample.

With respect to measurement of the OP construct, adequate rater and scale reliabilities were obtained for both samples, and group differences findings were virtually identical for the questionnaire and observational data. Additional support for the validity of the questionnaire and observational measures of OP was found in a set of analyses that examined associations between OP and psychological control and an additional set of

¹⁰ As indicated in Figure 3, associations between autonomy and adjustment were computed with and without OP controlled. To test Condition 3 properly, one should evaluate the significance of the mediator-outcome path with the IV controlled (Holmbeck, 1997, 2002).

Table 6
 Regression Results for Prediction of Preadolescent Adjustment From Questionnaire and Observational Paternal OP Variables

Step	Variable	Spina bifida (n = 68)				Able-bodied (n = 68)				
		β	R	ΔR^2	F	Variable	β	R	ΔR^2	F
DV = Internalizing Behavior Problems (CBCL; M, F, T)										
1	OP-Obser-F	.28	.28	.08	4.05*	OP-Quest-F	.18	.18	.03	1.77
2	OP-Quest-F	.08	.29	.01	0.33	OP-Obser-F	-.11	.21	.01	0.57
DV = Externalizing Behavior Problems (CBCL; M, F, T)										
1	OP-Quest-F	.32	.32	.10	5.65*	OP-Quest-F	.25	.25	.06	3.39
2	OP-Obser-F	.16	.36	.02	1.35	OP-Obser-F	.09	.27	.01	0.41
DV = Child Depression (CDI; C)										
1	OP-Quest-F	.34	.34	.11	5.67*	OP-Obser-F	.09	.09	.01	0.45
2	OP-Obser-F	-.01	.34	.00	0.00	OP-Quest-F	-.01	.10	.00	0.01
DV = Social Acceptance (Harter; C, M, F, T)										
1	OP-Obser-F	-.18	.18	.03	1.54	OP-Quest-F	.19	.19	.04	1.97
2	OP-Quest-F	-.05	.18	.00	0.11	OP-Obser-F	.12	.23	.01	0.68
DV = Behavioral Conduct (Harter; C, M, F, T)										
1	OP-Quest-F	-.21	.21	.04	2.15	OP-Obser-F	-.27	.27	.07	3.95*
2	OP-Obser-F	-.14	.25	.02	1.06	OP-Quest-F	-.22	.34	.05	2.58
DV = Global Self-Worth (Harter; C)										
1	OP-Obser-F	-.16	.16	.03	1.22	OP-Obser-F	-.21	.21	.04	2.28
2	OP-Quest-F	-.14	.22	.02	0.96	OP-Quest-F	.10	.23	.01	0.54

Note. The OP-Questionnaire variables are based on parental and child report. Beta weights are standardized and indicate the direction of the effect at the step the predictor entered the equation. The *ns* vary somewhat because of missing values. OP = overprotectiveness; DV = dependent variable; CBCL = Child Behavior Checklist; M = mother; F = father; T = teacher; Obser = observational; Quest = questionnaire; CDI = Children's Depression Inventory; C = child; Harter = Self-Perception Profile for Children.

* $p < .05$.

analyses that examined the effects of OP on autonomy and adjustment after controlling for psychological control. Such findings were consistent with theory insofar as OP and psychological control were found to be overlapping but nonredundant constructs. Although the observational measure of OP was not associated significantly with the questionnaire measure, low correlations between observational and self-report methods are common across literatures (e.g., Melby, Conger, Ge, & Warner, 1995; Northup, Jones, Broussard, & George, 1995; see Cone, 1999; Jacob, Tennenbaum, & Krahn, 1987, for reviews). On the other hand, such a lack of relationship across methods, is concerning and indicates that the convergent validity of the observational measure remains to be established.

The finding that parents of children with spina bifida were more overprotective than parents of able-bodied children was robust insofar as the same result emerged regardless of whether OP was assessed with questionnaire or observational data. Parents who are caring for children with spina bifida may overprotect because they perceive their children to be more vulnerable because of their medical condition (Thomasgard & Metz, 1995; Thomasgard, Shonkoff, Metz, & Edelbrock, 1995) or because they are attempting to gain control of a complex and often unpredictable medical situation (Anderson & Coyne,

1993). Moreover, mediational analyses involving PPVT scores revealed some information about underlying mechanisms that may explain these group differences. Specifically, it appears that a significant portion of this group difference can be attributed to group differences in cognitive ability. That is, parents appear to exhibit more OP in families of children who are less cognitively skilled.

Some may argue that the group differences findings for OP emerged because children with spina bifida ordinarily require more "protection" and that elevated levels of protection merely reflect what would be any parent's typical response to a vulnerable child (e.g., Lollar, 1994). On the other hand, the bulk of the questionnaire and observational items refer to *excessive* amounts of protection (which also may explain the low rates of OP across questionnaire and observational methods). Finally, the fact that OP was associated with less behavioral autonomy and more maladjustment supports our contention that we have assessed excessive levels of parental protection rather than a typical or adaptive response to an atypical situation. In short, it appears that parents of children who have spina bifida are more likely to exhibit higher levels of excessive protection.

Results of this study also revealed that fathers in both groups were significantly less overprotective than were mothers, re-

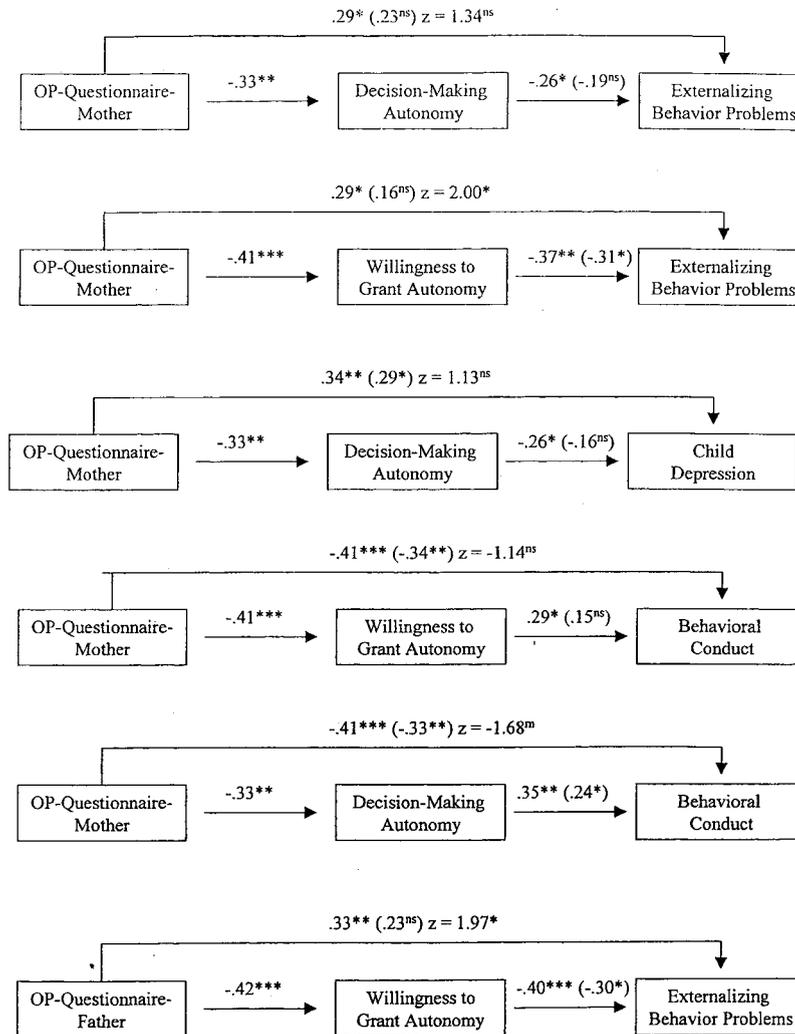


Figure 3. Six mediational pathways tested for possible significance. All are based on questionnaire data for the spina bifida sample. Values on the paths are path coefficients (standardized betas). Path coefficients outside parentheses are zero-order betas. Path coefficients in parentheses are partial regression coefficients from equations that include the other variable with a direct effect on the criterion. ns = nonsignificant; OP = overprotectiveness; m = marginal. $*p < .05$. $**p < .01$. $***p < .001$.

regardless of measurement method. It is possible that parents in both groups follow traditional gender-stereotypic caretaking roles, with mothers being the primary caretakers. That is, mothers of children with spina bifida may be more responsible for the multiple caretaking demands that are placed on the family (Floyd & Zmich, 1991). As a consequence, mothers may be more prone to become engaged in a "miscarried helping" process (Anderson & Coyne, 1993), which may eventually manifest itself in higher levels of maternal OP.

With respect to associations between OP and autonomy, results suggest that mothers and fathers in both groups who were more overprotective were less likely to grant autonomy to their children. Parents who care for a child with a chronic illness may experience conflicts between a desire to foster independence in the ill child and a desire to protect the child

from adverse medical outcomes (Anderson & Coyne, 1993). The findings of this study support the notion that excessive parental protection is at odds with the normal developmental trajectory of early adolescent autonomy development (Hill & Holmbeck, 1986).

Significant associations between OP and adjustment tended to emerge for externalizing rather than internalizing symptoms, suggesting that defiance and resistance may be the most common consequences of OP. On the other hand, findings were also significant for child report of depression, which suggests that depression may also be a consequence of overprotective parenting. The fact that OP tended to be associated with child (rather than parent) report of depression coheres well with past research that suggests that adults may not be optimal reporters of children's internalizing symptoms (Kazdin, Moser, Colbus,

& Bell, 1985).¹¹ Finally, OP tended to be unrelated to indicators of positive adjustment, such as social acceptance and global self-worth. The fact that OP tended to be associated with maladaptive rather than adaptive outcomes does not rule out the possibility, however, that OP may be adaptive for some outcomes not included in this report (e.g., adherence to medical regimens, delay of onset of early sexual behaviors, drug use).

Finally, partial support was found for the mediational role of behavioral autonomy in associations between OP and adjustment. However, this finding emerged only for the spina bifida group and only for externalizing behaviors. It is likely that the achievement of individual autonomy is a particularly salient issue for children who are physically disabled. Moreover, when the development of autonomy is prevented, preadolescents appear to exhibit problems of behavioral conduct rather than internalizing problems (Cappelli et al., 1989). If we were to examine older children, it is possible we may have found more effects for the latter.

Combining across both sets of mediational analyses examined in this report (i.e., group → PPVT → OP and OP → autonomy → adjustment), we can speculate about a more complex mediational pathway. Specifically, OP appears to be more likely in families of physically disabled children who have lower levels of cognitive ability. Indeed, children who have less cognitive ability may be less responsible for the management of their disability and their daily activities and have parents who are more protective. In other words, child factors may be instrumental in stimulating increases in parental OP (see Anderson & Coyne, 1993). Finally, parents who are overprotective are, in turn, more likely to have children lower in behavioral autonomy and psychosocial adjustment. Future research with larger samples could examine a model that includes all of these variables (i.e., group → cognitive ability → OP → autonomy → adjustment) as well as additional child factors that may precede the onset of OP in families of children with spina bifida (e.g., attention problems, limited executive functioning abilities; Wills, 1993).

This study has several limitations, each of which point to directions for future research. First, the results of this study may not generalize to all chronically ill children. Additionally, this study was conducted on a relatively homogenous sample of families with respect to ethnicity and age. Future studies should include a more representative sampling of Spanish-speaking families to attend to this issue of external validity, particularly given the high rate of spina bifida in Hispanic populations (Lary & Edmonds, 1996). Second, all findings are based on cross-sectional and correlational data. Ideally, a mediational model should be tested with longitudinal data to rule out alternative bidirectional pathways. For example, it is possible that children who exhibit high levels of externalizing behaviors and low levels of independent functioning may prompt parents to exhibit higher levels of protective behaviors. Third, the construct of autonomy has been conceptualized in several different ways (Hill & Holmbeck, 1986; Steinberg & Silverberg, 1986). The results of this study are specific to behavioral autonomy and results may not generalize to other forms of autonomy (e.g., emotional autonomy).

Fourth, we only examined OP generically, without reference to situation (i.e., medical vs. nonmedical). It is possible that our results may have been different if we had focused on medically oriented situations in the spina bifida sample. Fifth, the fact that most of the significant findings in the mediational analyses only

emerged for the questionnaire data is somewhat concerning because overlap in reporters across constructs indicates that a portion of these effects may be due to common method variance. It is important that future studies in this area continue to use multi-source and multimethod data (Holmbeck, Li, Schurman, Friedman, & Coakley, 2002). Finally, the observational tasks used in this study (e.g., game and conflict tasks) represent novel tasks (vs. everyday activities or medical tasks). Thus, we may not be able to generalize to actual family situations from these artificial conditions. On the other hand, the similarity across some of the findings for the questionnaire and observational data suggests otherwise.

Regarding clinical implications, OP is a parenting behavior that is usually not examined by health care workers during routine visits (Thomasgard, Metz, et al., 1995). Thus, it may be useful for health care workers to be cognizant of parental OP and to include explicit questions about parenting quality as part of a comprehensive evaluation of the patient and his or her family. Although it may be important for physicians and health care workers to educate parents about the benefits of parental protection as it might apply to their child's medical adherence, it is equally important that health professionals support parents in facilitating self-reliance in their offspring. Future research should attempt to identify factors that contribute to the development and maintenance of overprotective parenting behaviors among mothers and fathers of both able-bodied and chronically ill children. Only in this way will we come to understand how the miscarried helping process unfolds over time and why this process evolves to maladaptive levels in some families but not in others.

¹¹ OP was associated with parent-teacher report of internalizing symptoms in one instance (i.e., associations between observed paternal OP and CBCL internalizing scores; see Table 6). This association was also significant when observed paternal OP scores were correlated with parent-teacher report on Scale 3 of the CBCL (i.e., Anxious-Depressed; $r = .31$, $p < .05$).

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