

Longitudinal Study of Observed and Perceived Family Influences on Problem-Focused Coping Behaviors of Preadolescents With Spina Bifida

Wendy L. McKernon, MA, Grayson N. Holmbeck, PhD, Craig R. Colder, PhD, Jennifer S. Hommeyer, MA, Wendy Shapera, MA, and Venette Westhoven, MA
Loyola University of Chicago

Objective: To study coping socialization longitudinally by examining reported and observed family environment and parenting variables in relation to children's problem-focused coping in a sample of 68 families of preadolescents with spina bifida and 68 matched able-bodied comparison families.

Methods: Family environment and parenting variables were assessed with mother and father reports and observational measures. Children's problem-focused coping was self-reported.

Results: Prospective analyses revealed that maternal responsiveness, paternal responsiveness, and family cohesion predicted an increase in children's use of problem-focused coping strategies, while change in paternal responsiveness and maternal responsiveness and demandingness was related concurrently to change in coping. Few group (spina bifida vs. able-bodied) or gender differences with respect to parenting and family influences on children's coping behaviors were found.

Conclusions: Multimethod findings suggest that the quality of parenting and family environment is associated with children's problem-focused coping behaviors. We discuss clinical implications.

Key words: *spina bifida; physical disability; parenting; family; coping; observation; adolescence.*

Coping has been defined as "efforts, both action-oriented and intrapsychic, to manage (i.e., master, tolerate, reduce, minimize) environmental and internal demands, and conflicts among them, which tax or exceed a person's resources" (Lazarus & Lannier, 1978, p. 311). Despite an extensive literature on the adjustment correlates of coping (e.g., Barakat & Linney, 1995; Ebata & Moos, 1991; Gil, Williams, Thompson, & Kinney, 1991; Lewis & Kliewer, 1996), there is a dearth of research on coping *socialization* (e.g., Kliewer, Fearnow, & Miller, 1996;

Kliewer & Lewis, 1995). Given the important role of coping in moderating associations between stress and adjustment (Aldwin, 1994), it is important to investigate how coping behaviors develop. Knowledge of factors that influence child coping behaviors would likely elucidate why children respond to stress as they do and could suggest potential targets for intervention. Rather than focusing only on parenting behaviors specifically intended to modify children's coping behaviors, we defined coping socialization broadly to include several parental and familial factors that may affect children's coping (Kliewer et al., 1996).

Middle childhood, which encompasses the

All correspondence should be sent to Grayson N. Holmbeck, Loyola University of Chicago, Department of Psychology, 6525 N. Sheridan Road, Chicago, Illinois 60626. E-mail: gholmbe@luc.edu.

years from 6 to 12, would appear to be a particularly important developmental period in which to investigate family influences on coping socialization. The research on middle childhood suggests that, although children experience a variety of social, emotional, and cognitive changes during this time period, the family continues to exert more influence on the child than do other socialization agents (Collins, Harris, & Susman, 1995). In addition, patterns of coping behaviors that develop at this age may become enduring behavioral patterns.

The purpose of this study was to examine the influence of family environment and parenting variables on preadolescents' acquisition of problem-focused coping strategies, with a specific focus on families of children with spina bifida. Families with children who have chronic illnesses or physical disabilities face multiple burdens due to frequent hospitalizations, financial strain, time-consuming medical regimens, and other stressors (Melamed, 1991). The degree to which these families and their children are able to manage such stressors is likely to affect their level of adjustment (Kazak, Segal-Andrews, & Johnson, 1995). Consequently, understanding coping acquisition in a pediatric population would seem to be particularly important.

Children's coping strategies have been classified in different ways. Compas and colleagues (Compas, Worsham, & Ey, 1992) have distinguished between confrontational or approach strategies wherein the individual seeks to change or manage the stressful situation, and avoidant strategies wherein the individual attempts to escape the problem in some way. From a somewhat different perspective, Lazarus and Folkman (1984) distinguished between problem-focused and emotion-focused coping. Problem-focused coping is similar to approach strategies and refers to coping efforts directed toward managing or altering a problem. Recent studies have focused on the adaptive function of problem-focused coping as it relates to adjustment (e.g., Holahan, Valentiner, & Moos, 1995). Emotion-focused coping, on the other hand, differs from avoidant strategies as it refers to efforts aimed at regulating the emotional response to the problem. Finally, coping strategies are believed to vary from one situation to another (e.g., whether the situation is controllable or uncontrollable; Carver, Scheier, & Weintraub, 1989; Folkman & Lazarus, 1988). However, evidence suggests some consistency of coping styles across time and situations (e.g., Hewitt & Flett, 1996), with individ-

uals having preferred modes of coping (e.g., Eisenberg et al., 1995). Thus, in this study, dispositional, as opposed to situational, coping strategies were evaluated.

This study is concerned with the impact of the family environment and parenting behaviors on children's dispositional problem-focused coping. Such influences have been highlighted in two models: Wallander and Varni's (1995) disability-stress-coping model of adjustment and Kliever et al.'s (1996) theoretical model of parent and family influences on children's coping. In Wallander and Varni's model, coping strategies are included as moderators of associations between psychosocial stress and child adjustment in children with chronic physical conditions. Most relevant to the current study, family environment is included as a social-ecological factor that directly affects coping strategies. Similarly, Kliever et al.'s (1996) investigation of family influences on children's coping behaviors supported a model of direct, as opposed to mediated, influences.

Researchers have suggested that socialization plays a significant role in the acquisition of coping behaviors and have emphasized the role of parental rearing practices (e.g., Hardy, Power, & Jaedicke, 1993). Two parenting behaviors studied extensively in relation to child coping and child adjustment are responsiveness (i.e., the degree to which parents are accepting and able to adapt to their child's needs and desires) and demandingness (i.e., the degree to which parents supervise and discipline their offspring and have expectations for mature behavior; Steinberg, 1990). For example, Dusek and his colleagues (e.g., Dusek & Danko, 1994; McIntyre & Dusek, 1994) found that parental responsiveness and demandingness were related to greater use of problem-focused coping in adolescents. Some have argued further that parenting behaviors, such as responsiveness and demandingness, influence children's coping strategies indirectly through their impact on children's feelings of competence and personal control (McIntyre & Dusek, 1994). In this study, parental responsiveness and demandingness were expected to influence children's problem-focused coping strategies such that high levels of both were expected to predict an increase in the use of such strategies.

Regarding the family environment, Kliever and colleagues (Kliever et al., 1996; Kliever & Lewis, 1995) suggested ways in which family cohesiveness

and conflict may influence how children cope with stressful events. Cohesive families who are low in conflict may convey a sense of security and support to the child as compared to families with low cohesiveness and high levels of conflict. Attachment theory suggests that children who feel more secure will be more likely to engage with their environment in an active manner. In contrast, children who feel less secure are more likely to feel threatened by stressful situations and consequently use avoidance coping strategies. In partial support of this, Kliewer and Lewis (1995) reported that a cohesive family environment was associated with children's problem-focused coping. Similar findings have emerged in other research (e.g., Ebata & Moos, 1994; Shulman, Seiffge-Krenke, & Samet, 1987; Stern & Zevon, 1990).

In this study, parenting behaviors and family environment variables were expected to predict children's problem-focused coping both concurrently and longitudinally. Children from more cohesive and less conflictive homes were expected to exhibit increases in problem-focused coping strategies over time. Similarly, children whose parents are responsive and demanding were expected to show increases in such coping behaviors. Moreover, increases in family cohesiveness, parental responsiveness, and parental demandingness and decreases in family conflict were expected to be associated concurrently with increases in problem-focused coping. To determine whether our findings applied *only* to families with children who have physical disabilities (or if they applied to both disabled and able-bodied populations), comparisons were made between families of children with spina bifida and a matched sample of families of able-bodied children. Because children with spina bifida spend more time with their families, have fewer close peer friendships, and engage in fewer activities outside the home (Blum, Resnick, Nelson, & St. Germaine, 1991), we expected that relations between the parenting/family variables and children's coping would be stronger for the spina bifida group. To reduce the effects of common method variance on the strength of our findings, parenting and family predictors of *child-reported* coping were assessed with *parent-report* and *observational* data. In other words, we examined only associations among variables drawn from different sources. Given the lack of data on fathers in this literature (Kazak et al., 1995), assessments of both mothers' and fathers'

parenting behaviors were conducted. Finally, given that gender differences have emerged in past work (e.g., Kliewer et al., 1996), we also examined gender main effects, gender \times parenting interactions, and gender \times family interactions.

Method

Participants

Participants were part of a longitudinal study on the transition to adolescence in families of children with spina bifida (Holmbeck et al., 1997). Participants at Time 1 were 68 families with 8- and 9-year-old children with spina bifida (37 male, 31 female; M age = 8.34) and a matched comparison group of 68 families with 8- and 9-year-old able-bodied children (37 male, 31 female; M age = 8.49). Complete demographic information for both groups at Time 1 is provided in Table I. The majority of child participants were Caucasian (91% in the able-bodied group; 82% in the spina bifida group, which corresponds to the ethnicity prevalence rate of spina bifida in the general population; Lary & Edmonds, 1996). A range of family incomes was represented in each sample (see Table I). Biological mothers from all families participated in the study. However, only 55 fathers/step-fathers from the spina bifida sample and 52 fathers/step-fathers from the able-bodied sample participated. At Time 2, which took place 2 years following the first assessment, only two comparison families and one spina bifida family declined to participate. The groups were successfully matched on all demographic variables (see Table I).

Information on a variety of physical status variables for the spina bifida group was obtained from maternal report data (i.e., method of ambulation, shunt status) and/or information from the child's medical chart (i.e., type of spina bifida, lesion level, number of shunt surgeries). The majority of children had spina bifida myelomeningocele ($n = 56$; lipomeningocele, $n = 8$; other or missing, $n = 4$). Most of these children also had a shunt (71%). Method of ambulation was through the use of braces (63%), a wheelchair (18%), or was unassisted (19%). Thirty-two percent of the children had sacral lesion levels, 50% had lumbar lesions, and 13% had thoracic level lesions (5% missing data). Among children with shunts, the average number of shunt-

Table 1. Demographics: Comparisons Across Samples

Demographic Characteristics	Spina bifida		Able-bodied		Statistical tests	
	<i>M</i> (<i>SD</i>)	% (<i>n</i>)	<i>M</i> (<i>SD</i>)	% (<i>n</i>)	<i>t</i>	χ^2
Child age	8.34 (.48)		8.49 (.50)		(134) = -1.75	
Maternal age	37.74 (5.19)		37.74 (4.84)		(134) = .00	
Paternal age	41.02 (5.45)		40.63 (6.50)		(105) = .33	
Child gender						
Male		54.41 (37)		54.41 (37)		(1) = .00
Female		45.59 (31)		45.59 (31)		
Child ethnicity						
White		82.35 (56)		91.18 (62)		(1) = 2.30
Other		17.65 (12)		8.82 (6)		
Child birth order						
Birth order	2.12 (1.38)		2.06 (1.29)		(129) = .27	
Marital status						
Two-parent intact		80.88 (55)		69.12 (47)		(1) = 2.51
Nonintact		19.12 (13)		30.88 (21)		
Maternal income	5.75 (2.57)		5.73 (2.45)		(130) = .05	
Paternal income	6.24 (2.50)		6.35 (2.22)		(105) = -.24	
Hollingshead SES	43.12 (10.57)		46.46 (10.89)		(131) = -1.80	

N = 68 for each sample. Family income is rated on a scale from 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 is based on a composite of maternal education, paternal education, maternal occupational status, and paternal occupational status. All statistics were nonsignificant.

related surgeries was 2.50 (*SD* = 2.91). Medical chart interrater reliabilities for type of spina bifida and lesion level yielded percentage agreements of 83% and 92%, respectively. Rater reliability for number of shunt surgeries was $r = .97$.

As expected, a significant difference was found between the samples on a measure of receptive language (Peabody Picture Vocabulary Test, Revised; Dunn & Dunn, 1981): $M = 92.49$ ($SD = 18.49$) for children in the spina bifida group and $M = 108.97$ ($SD = 15.06$) for children in the able-bodied group. This corresponds to previous findings based on verbal IQ test scores, in which 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, we made no attempt to match the samples on this variable, and statistical controls for PPVT-R scores were not instituted.

Participant Recruitment

Participating families in the spina bifida group were recruited from lists provided by four sources: (1) a

children's hospital, (2) a children's hospital that cares exclusively for youngsters with physical disabilities, (3) a university-based medical center, and (4) a statewide spina bifida association. A recruitment letter was sent to all parents of children within the 8- to 9-year-old age range (and those who would reach this age within the following year). Out of 310 nonoverlapping child names from the four sources, 72 families lived too far away (greater than 120 miles from the laboratory), 64 declined to participate, 56 could not be reached (due to invalid addresses and phone numbers), 16 did not speak English, 14 children had turned 10 years old before a visit could be scheduled, 11 children did not have spina bifida, and 9 were excluded for miscellaneous reasons. A comparison of participating children with children from families that declined to participate ($n = 64$) revealed no differences with respect to lesion level, $\chi^2(2) = .62$, $p > .05$, or type of spina bifida (myelomeningocele vs. lipomeningocele), $\chi^2(1) = 1.63$, $p > .05$.

Participating families from the able-bodied comparison group were recruited by contacting schools where the children with spina bifida were enrolled. To obtain a comparison 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 based on the following fac-

tors: location, the average family income of the surrounding community, and the ethnic distribution in the school. Information on family income was obtained from "average community family income" lists provided by local state governments for the two states in which the children with spina bifida resided. 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. This list provided us with the necessary number of potential able-bodied participants to yield a satisfactory matching of groups. Of these 42 schools, 24 were ruled out for one of the following reasons: (1) the community was too far away to run multiple families in that community, given limited funding resources ($n = 5$), (2) the average family income in the community was too high; inclusion of such schools could have produced an imbalance in the two groups if multiple able-bodied children from these schools had volunteered to participate (a problem that was likely given higher rates of participation among able-bodied children in schools situated in higher income communities; $n = 12$), (3) there was a racial distribution in the school that could have produced matching difficulties ($n = 4$), (4) the school was parochial or private ($n = 2$), or (5) the school only had special education programs ($n = 1$). Of the remaining 18 schools, 12 agreed to participate and 6 declined. At the participating schools, recruitment letters (as well as self-addressed, stamped envelopes) were sent home with comparison children in our age range; parents could then return a slip indicating their consent to participate. To obtain the sample used in this study, roughly 1,700 letters were sent. 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

At Times 1 and 2, trained graduate and undergraduate research assistants conducted the assessments of participating families during 3-hour home visits. Parents and children completed a set of questionnaires and 1 hour of videotaped family interaction tasks. The order of questionnaires and family interaction tasks was randomized. For the family interaction tasks, families were presented with two "warm-up" tasks, which were word games and puzzles. Following this, families were presented with three interaction tasks in random order. One task was the

Unfamiliar Board Game. Families were asked to spend 10 minutes deciding on rules for an unfamiliar game and were then asked to play the game with these rules. The conflict task was based on the Family Social Interaction Task used by Smetana, Yau, Restrepo, and Braeges (1991). During the questionnaire part of the family visit, and prior to the family interaction portion of the visit, parents and children completed a short form of the Issues Checklist (Robin & Foster, 1989). The Issues Checklist is a measure of parent-child conflict that inquires about discussions regarding 15 possible issues that have occurred between the parents and the child over the past 2 weeks. Based on the questionnaire responses, weighted conflict scores (i.e., intensity \times frequency) for each issue for each family member were tabulated by research assistants before the family interaction tasks. The family was then presented with the five most conflictive issues (i.e., those that received the highest weighted conflict score across all family members) and was instructed to select three of the five issues and discuss them for 10 minutes. Families were also presented with the Structured Family Interaction Task (Ferreira, 1963). Prior to this task, each family member was asked individually to choose a first and second choice for five multiple-choice questions that assessed their preferences for various family activities. Subsequently, family members were presented with these same items and asked to decide on a joint family response for each item (which was videotaped). The same procedures were followed at both assessment times. At Time 1, families received \$50 for their participation; at Time 2, they received \$75.

Self-Report Measures

Child Coping. Children responded to the Self-Report Coping Scale (SRCS; Causey & Dubow, 1992). The SRCS is a theory-driven, multifaceted, 34-item, Likert-type coping measure for elementary school children. The scale assesses a total of five coping strategies, which are subsumed by two second-order scales: the Approach scale, which includes Seeking Social Support and Problem Solving subscales, and the Avoidance scale, which includes Distancing, Internalizing, and Externalizing Emotional Reaction subscales. The inclusion of problem-solving and social support items within a second-order approach/active coping scale is supported by confirmatory factor analytic studies (Walker, Smith, Garber, & Van Slyke, 1997). For each item, children were

asked to indicate what they “usually do when something bad happens to you like when you get a bad grade or when you get in an argument or a fight with a friend” on a 5-point scale ranging from 1 (“never”) to 5 (“always”). In past work, the measure has demonstrated adequate reliability and validity. Specifically, Causey and Dubow (1992) found internal consistencies ranging from .68 to .84 and test-retest reliabilities ranging from .60 to .78. They also found significant correlations with peer ratings of coping (range of significant r s = .22 to .53), anxiety (r = .40 with internalizing coping), and global self-worth (r = .29 with problem solving coping and r = -.25 with distancing coping). This study used the Approach scale (herein called the Problem-Focused scale). Cronbach’s alpha reliability coefficients for Time 1 and Time 2 problem-focused coping were .85 and .87 for the spina bifida group and .75 and .83 for the comparison group, respectively.

Perceived Parenting Behaviors. Five subscales from a parent-report version of the Child’s Report of Parent Behavior Inventory (CRPBI, Schludermann & Schludermann, 1970) were used to assess the level of responsiveness and demandingness exhibited by parents. Parents were asked to “decide which answer most closely describes the way you have acted towards your child” on a scale that ranged from 1 (“not like me as a parent”) to 3 (“a lot like me as a parent”). The Acceptance and Rejection (reverse-scored) subscales measured Responsiveness. Control, Enforcement, and Lax Discipline (reverse-scored) subscales were used to measure Demandingness. Scale reliabilities for the CRPBI were run separately for mother and father reports. For the spina bifida group at Time 1 and 2, reliabilities for mother reports were .78 and .74 for responsiveness and .79 and .80 for demandingness. Time 1 and 2 reliabilities for father reports were .79 and .75 for responsiveness and .79 and .74 for demandingness. For the comparison group at Time 1 and 2, mother report reliabilities were .81 and .78 for responsiveness and .80 and .75 for demandingness. Time 1 and 2 father report reliabilities were .84 and .85 for responsiveness and .76 and .79 for demandingness.

Perceived Family Environment. Parents responded to the Family Environment Scale (Moos & Moos, 1986), which is a widely used 90-item measure of the family atmosphere with satisfactory psychometric properties. Form R was used, which assesses an individual’s perceptions of his or her nuclear family environment. The FES includes 10 subscales that measure the social and environmental characteris-

tics of families. Only the Cohesion and Conflict subscales were used in these analyses. A true-false response choice format was used at Time 1 but this was changed to a 4-point Likert scale format at Time 2 (given low alphas for some subscales and because of additional psychometric concerns with the original version; Roosa & Beals, 1990). Because of high correlations between mother and father reports on these scales (.53 for cohesion and .51 for conflict at Time 1) and because we sought to assess cohesion and conflict at the systemic level, mother and father reports were averaged, except in mother- or father-only families, in which case only mother- or father-report data were used. For the spina bifida group at Time 1 and 2, alpha coefficients were .80 and .74 for cohesion and .72 and .84 for conflict, respectively. For the comparison group, Time 1 and 2 reliabilities were .80 and .86 for cohesion and .84 and .85 for conflict.

Observational Measures

The three family interaction tasks were coded using a global coding method developed by Holmbeck, Belvedere, Gorey-Ferguson, and Schneider (1995), based on a system devised by Smetana et al. (1991). As is typically done with global coding systems, coders viewed an entire family interaction task and then provided 5-point Likert scale ratings on a variety of dimensions. The manual includes behavioral descriptions for each of the points along the Likert scale. Parental behavior was rated by two coders for all three tasks and across all families. These coders were undergraduate-and graduate-level research assistants who received 10 hours of training before beginning the coding process. All coders were blind to the specific hypotheses of this study.

This coding system contains five dimensions of parenting behavior, child behavior, and parent-child relationships (each of which includes multiple codes): (1) Interaction Style, (2) Conflict, (3) Affect, (4) Control, and (5) Child-Centered and Collaborative Problem-Solving. Several family atmosphere variables were coded as well. Scales for parental responsiveness and demandingness and family conflict and cohesion were formed rationally (as opposed to empirically) by selecting items from the complete list of codes that reflected the definitions of each parenting construct as discussed in the literature (e.g., Steinberg, 1990). The parenting scales were formed separately for mother and father. Given our intent to form family-level cohesion and

conflict scales, mother, father, and child codes were averaged for these family environment variables. The codes used to measure Responsiveness were Listens to Others, Humor and Laughter, Warmth, Anger (reverse-scored), and Supportiveness (a total of five items each for mother and father). Demandingness was assessed with the following codes: Overt Power, Nature of Parental Control—Permissive (reverse-scored), and Parental Structuring of Task (three codes each for mother and father). Codes used to measure Cohesion included Requests Input from Others, Comfort Level during Interaction, Involvement in the Task, Parents Present a United Front, Parental Promotion of Dialogue and Collaboration, and three measures of General Family Atmosphere (Disengaged [reverse-scored], Openness, and Able to Reach an Agreement). Finally, codes used as measures of Conflict included Level of Conflict within Dyads, Frequently Disagrees with Others, and Attempted Resolution of Issues (reverse-scored).

Interrater reliabilities (i.e., intraclass correlations) across tasks for the spina bifida group at Time 1 and 2 were .79 and .73 for maternal responsiveness, .88 and .81 for paternal responsiveness, .74 and .55 for maternal demandingness, .87 and .91 for paternal demandingness, .86 and .77 for cohesion, and .74 and .73 for conflict. For the able-bodied group at Time 1 and 2, interrater reliabilities were .79 and .82 for maternal responsiveness, .79 and .69 for paternal responsiveness, .85 and .74 for maternal demandingness, .85 and .84 for paternal demandingness, .79 and .79 for cohesion, and .81 and .78 for conflict.

Cronbach's alpha reliability coefficients were also computed to assess the internal consistency of each scale. For the spina bifida group at Time 1 and 2, reliabilities were .86 and .75 for maternal responsiveness, .66 and .59 for maternal demandingness, .88 and .78 for paternal responsiveness, .68 and .84 for paternal demandingness, .92 and .84 for family cohesion, and .79 and .84 for family conflict, respectively. For the comparison group at Time 1 and 2, reliabilities were .85 and .75 for maternal responsiveness, .85 and .68 for maternal demandingness, .80 and .75 for paternal responsiveness, .78 and .70 for paternal demandingness, .90 and .84 for family cohesion, and .87 and .85 for family conflict, respectively.

A listing of means, standard deviations, ranges, and number of valid cases for all Time 1 and Time 2 variables is included in Table II.

Power Analysis

A power analysis using procedures outlined by Aiken and West (1991; Table 8.5, p. 164) was performed to determine the power of this study to detect a two-way interaction with continuous variables. Assuming a moderate effect size for the interaction term ($f^2 = .15$), a moderate amount of variance accounted for by the combined first order terms ($r^2_{Y,M} = .20$), a moderate interpredictor correlation ($r_{x,z} = .50$), measurement reliability of .80, and an alpha of .05, a sample size of 108 was required for power of .80. The sample size for this study was 136. Thus, there was sufficient power to detect two-way interactions. The three-way interactions, however, would require a much larger sample size for sufficient power to detect differences. Thus, tests of three-way interactions were conducted in an exploratory fashion.

Analysis Plan

Hierarchical multiple regression analyses were used to test the hypotheses. Initial cross-sectional tests of the significance of the two-way and three-way interaction effects revealed that only 6 of 96 interactions were significant (and there was no consistent pattern for these effects). Thus, interaction terms were not considered further. The lack of interaction effects suggests that findings were not significantly different across the two samples or across gender and that interactions among pairs of parenting/family variables (e.g., maternal responsiveness \times maternal demandingness) were also not significant.

Six regressions were run to examine whether the following variable clusters were predictive of change in child problem-focused coping over time: (1) maternal parenting behaviors (responsiveness and demandingness) from questionnaire data, (2) paternal parenting behaviors from questionnaire data, (3) maternal parenting behaviors from observational data, (4) paternal parenting behaviors from observational data, (5) family environment (cohesion and conflict) from questionnaire data, and (6) family environment from observational data. Time 2 child coping was the dependent variable and Time 1 child coping was controlled at step 1 prior to entering the other predictors. In this way, we were able to examine the predictive utility of the parenting and family variables for change in coping from Time 1 to Time 2 (since, by partialling the Time 1 scores from the Time 2 scores, we were examining

Table II. Descriptive Statistics

Variable	Spina bifida			Able-bodied		
	<i>M (SD)</i>	Range	Valid cases	<i>M (SD)</i>	Range	Valid cases
T1 Coping	3.45 (.77)	1.50–5.00	59	3.39 (.50)	2.25–4.69	68
T1 MR-Q	2.63 (.23)	2.00–3.00	65	2.64 (.24)	1.69–3.00	68
T1 MD-Q	1.98 (.30)	1.20–2.67	65	2.04 (.32)	1.40–2.80	68
T1 PR-Q	2.60 (.25)	2.00–3.00	53	2.60 (.27)	1.94–2.94	52
T1 PD-Q	1.92 (.31)	1.33–2.60	53	2.06 (.29)	1.40–2.80	52
T1 MR-O	3.71 (.41)	2.67–4.50	67	3.76 (.36)	2.77–4.53	68
T1 MD-O	4.35 (.36)	3.28–4.94	67	4.23 (.46)	2.44–4.89	68
T1 PR-O	3.66 (.52)	2.30–4.73	53	3.61 (.34)	2.87–4.33	52
T1 PD-O	4.09 (.47)	3.06–4.83	53	4.06 (.53)	3.11–5.00	53
T1 COH-Q	.82 (.19)	.11–1.00	66	.82 (.17)	.11–1.00	68
T1 CON-Q	.30 (.18)	.00–.67	66	.35 (.25)	.00–.89	68
T1 COH-O	3.64 (.44)	2.58–4.61	67	3.80 (.35)	2.80–4.63	68
T1 CON-O	2.04 (.30)	1.47–2.77	67	2.04 (.30)	1.50–2.93	68
T2 Coping	3.40 (.69)	1.50–4.69	65	3.33 (.52)	1.38–4.63	66
T2 MR-Q	2.64 (.22)	2.13–3.00	65	2.66 (.22)	2.06–3.00	66
T2 MD-Q	1.97 (.32)	1.27–2.60	65	1.97 (.29)	1.40–2.67	66
T2 PR-Q	2.60 (.23)	2.13–3.00	49	2.58 (.28)	1.94–2.94	49
T2 PD-Q	1.90 (.28)	1.27–2.60	49	2.02 (.29)	1.47–2.87	49
T2 MR-O	3.78 (.30)	3.03–4.30	60	3.74 (.31)	2.83–4.43	64
T2 MD-O	4.26 (.28)	3.50–4.78	60	4.14 (.34)	2.83–4.78	64
T2 PR-O	3.67 (.33)	3.03–4.43	42	3.53 (.30)	2.70–4.23	44
T2 PD-O	4.02 (.43)	2.89–4.72	42	4.02 (.40)	3.11–5.00	45
T2 COH-Q	2.93 (.28)	2.22–3.56	66	3.06 (.35)	2.12–3.78	66
T2 CON-Q	2.05 (.32)	1.44–2.94	66	2.17 (.40)	1.33–3.28	66
T2 COH-O	3.80 (.30)	3.15–4.54	61	3.84 (.33)	3.18–4.63	64
T2 CON-O	1.91 (.30)	1.37–2.70	61	1.98 (.34)	1.36–2.93	64

T1 = Time 1, T2 = Time 2, MR = Maternal Responsiveness, MD = Maternal Demandingness, PR = Paternal Responsiveness, PD = Paternal Demandingness, COH = Family Cohesion, CON = Family Conflict, Q = Questionnaire, O = Observational.

the residual change in child coping from Time 1 to Time 2).

At step 2, four variables were entered in a stepwise fashion (i.e., group, gender, and two parenting/family variables). If, for example, a parenting variable was significantly predictive at this step, this would indicate that this variable was associated with change in coping over time (i.e., an increase or decrease depending on the sign of the beta weight). At step 3, Time 2 versions of the two parenting/family variables that were entered at step 2 were entered in a stepwise fashion. The significance of a Time 2 parenting/family variable would indicate that change in the parenting/family variable was associated concurrently with change in the coping variable (given that the Time 1 parenting/family variable will already have been entered into the equation; Cohen & Brook, 1987). (“Change” here refers to a change in the rank ordering of individuals’ values on specific variables from Time 1 to Time

2 and does not necessarily indicate change in the variable’s raw score values.) For example, for the first regression with maternal parenting behaviors (questionnaire) predicting change in child problem-focused coping, Time 1 child coping was entered at step 1. Time 1 maternal responsiveness, Time 1 maternal demandingness, gender, and group (spina bifida vs. comparison) were entered at step 2. Finally, Time 2 maternal responsiveness and Time 2 maternal demandingness were entered at step 3. The same procedure was followed for the other five regression analyses.

Results

Preliminary Analyses

Analyses were conducted to determine the degree of association among the parenting and family con-

structs within and across methods (as assessed at Time 1). For the questionnaire data, associations between responsiveness and demandingness were low for both groups (range of $r = -.17$ to $.14$). On the other hand, associations between the FES cohesiveness and conflict scales were higher ($r = -.55$ for the spina bifida sample and $r = -.60$ for the able-bodied sample). Thus, similar findings were expected for these two FES scales. Correlations between the parenting and FES scales were all less than $.50$, with one exception; for the able-bodied sample, the correlation between father-reported responsiveness and the FES conflict scale was $-.54$. For the observational data, associations between responsiveness and demandingness were higher than for the questionnaire data (range of $r = .27$ to $.61$). As was found with the questionnaire data, associations between the observed conflict and cohesion scales were significant ($r = -.56$ for the spina bifida sample and $r = -.58$ for the able-bodied sample). Correlations between the observational parenting and family scales were also high (mean $r = .59$ for the spina bifida group and mean $r = .58$ for the able-bodied group; all r s were transformed to absolute values prior to computing means). Thus, for psychometric reasons, we expected that associations between the parenting/family predictors and child coping would be more similar across the observational measures of parenting and family environment than across the questionnaire measures. As would be expected, correlations across methods tended to be lower than the within method correlations. Specifically, the cross-method r s for the same constructs ranged from $-.11$ to $.22$ (mean $r = .05$) for the spina bifida sample and from $-.14$ to $.41$ (mean $r = .17$) for the comparison sample.

Longitudinal Analyses

A paired t test was performed to determine differences between Time 1 and Time 2 child problem-focused coping. This was nonsignificant ($t[2, 122] = 1.48$, ns), indicating that, overall, child problem-focused coping was relatively stable over time (for the sample as a whole; individual change may have occurred). Child gender was significant in all regression analyses, which indicated a more substantial increase in females' use of problem-focused coping strategies over time (relative to males; see Table III).

Parenting Behavior: Questionnaire Data. As Table III illustrates, the multiple regression analysis testing the relationship between the reported maternal

parenting variables and change in child problem-focused coping revealed a significant main effect for Time 2 reported maternal responsiveness, indicating that an increase in maternal responsiveness was associated concurrently with an increase in child problem-focused coping. The multiple regression analyses that tested associations between reported paternal parenting variables and child problem-focused coping revealed significant main effects for Time 1 and Time 2 paternal responsiveness. This finding indicates that Time 1 paternal responsiveness was related to an increase in children's use of problem-focused coping from Time 1 to Time 2 and that a positive change in paternal responsiveness was related concurrently to an increase in child problem-focused coping.

Parenting Behavior: Observational Data. As Table III demonstrates, the multiple regression testing the relationship between observed maternal parenting variables and change in child problem-focused coping revealed significant main effects for Time 1 observed maternal responsiveness and Time 2 observed maternal demandingness. This indicates that Time 1 maternal responsiveness was related to an increase in children's problem-focused coping over time. Moreover, an increase in maternal demandingness was related concurrently to an increase in child problem-focused coping from Time 1 to Time 2. The regression testing the relationship between observed paternal parenting behavior and change in child problem-focused coping revealed a significant main effect for Time 1 paternal responsiveness, indicating that Time 1 paternal responsiveness was related to an increase in children's use of problem-focused coping over time.

Family Environment: Questionnaire and Observational Data. For both questionnaire and observational data, the multiple regressions that examined the relationship between reported family environment and change in child coping over time revealed a significant main effect of Time 1 family cohesion, indicating that Time 1 cohesion was related to an increase in child problem-focused coping from Time 1 to Time 2.

Discussion

The purpose of this study was to examine coping socialization longitudinally in children and to compare this process across spina bifida and able-bodied groups. Observed and perceived parenting behav-

Table III. Multiple Regression Results for Longitudinal Effects of Parenting, Family Environment, Group, and Gender on Time 2 Child Problem-Focused Coping

Step and variable	β	Mult <i>R</i>	<i>R</i> ² Change	<i>F</i> Change
Maternal parenting: questionnaire (<i>N</i> = 120)				
1 T1 Child problem-focused coping	.20	.20	.04	4.83*
2 Child gender	.22	.29	.05	5.93*
3 T1 Maternal demandingness	-.08	.30	.01	.92
4 T1 Maternal responsiveness	.04	.31	.00	.21
5 Group	.02	.31	.00	.05
6 T2 Maternal responsiveness	.23	.35	.03	3.95*
7 T2 Maternal demandingness	-.08	.36	.00	.46
Paternal parenting: questionnaire (<i>N</i> = 89)				
1 T1 Child problem-focused coping	.19	.19	.04	3.16
2 Child gender	.27	.33	.07	6.87**
3 T1 Paternal responsiveness	.23	.40	.05	5.27*
4 Group	-.06	.40	.00	.29
5 T1 Paternal demandingness	-.00	.40	.00	.00
6 T2 Paternal responsiveness	.31	.47	.06	5.86*
7 T2 Paternal demandingness	.14	.47	.01	.73
Maternal parenting: observational (<i>N</i> = 117)				
1 T1 Child problem-focused coping	.22	.22	.05	5.85*
2 T1 Maternal responsiveness	.30	.37	.09	11.60***
3 Child gender	.24	.44	.06	8.40**
4 T1 Maternal demandingness	.09	.45	.01	.94
5 Group	-.05	.45	.00	.29
6 T2 Maternal demandingness	.24	.50	.05	6.63**
7 T2 Maternal responsiveness	.00	.50	.00	.00
Paternal parenting: observational (<i>N</i> = 80)				
1 T1 Child problem-focused coping	.22	.22	.05	4.18*
2 Child gender	.27	.35	.08	6.60**
3 T1 Paternal responsiveness	.23	.42	.05	4.75*
4 Group	.10	.43	.01	.57
5 T1 Paternal demandingness	-.05	.43	.00	.24
6 T2 Paternal responsiveness	.18	.45	.02	1.89
7 T2 Paternal demandingness	-.00	.45	.00	.00
Family environment: questionnaire (<i>N</i> = 122)				
1 T1 Child problem-focused coping	.21	.21	.04	5.58*
2 T1 Cohesion	.23	.31	.05	6.62**
3 Child gender	.22	.38	.05	6.63**
4 Group	.01	.38	.00	.01
5 T1 Conflict	.00	.38	.00	.00
6 T2 Cohesion	.16	.40	.02	2.21
7 T2 Conflict	-.06	.40	.00	.15
Family environment: observational (<i>N</i> = 118)				
1 T1 Child problem-focused coping	.22	.22	.05	6.02*
2 T1 Cohesion	.26	.34	.07	9.04**
3 Child gender	.25	.43	.06	8.79**
4 Group	-.09	.44	.01	1.15
5 T1 Conflict	-.02	.44	.00	.03
6 T2 Conflict	-.16	.46	.02	2.63
7 T2 Cohesion	.08	.46	.00	.53

T1 = Time 1, T2 = Time 2. All statistics for a given independent variable were computed at the step that the variable entered the equation.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

iors and family environment were found to be associated with increases in children's use of problem-focused coping. Contrary to prediction, few group differences with respect to family influences on children's coping behaviors were found, suggesting that coping socialization may be similar across the two groups. Strengths of the study include the longitudinal assessment of all variables, the inclusion of both observational and questionnaire measures of parenting and family environment, and our data analytic strategy that eliminated "common method variance" as an alternative explanation for the findings.

We hypothesized that children whose parents were more responsive and demanding would tend to use more problem-focused strategies. As anticipated, reported paternal responsiveness and observed maternal and paternal responsiveness at Time 1 were related to an increase in children's problem-focused coping over time. Moreover, increases in reported maternal and paternal responsiveness were associated concurrently with increases in problem-focused coping. Overall, and similar to past work (Dusek & Danko, 1994; Kliewer et al., 1996), these findings suggest that parental responsiveness plays a key role in children's acquisition of problem-focused coping behaviors.

As noted earlier, parental responsiveness may influence children's coping indirectly by increasing children's sense of competence and control, which may subsequently allow them to engage actively with their environment (Kliewer & Lewis, 1995). Given that our child problem-focused coping scale included items that tapped social support seeking, it may also be that high levels of parental responsiveness make it more likely that children will seek responsive social support in future encounters with stressful situations. It is also worth noting that our findings support the *universal* predictive utility of parental responsiveness, given that the findings did not differ across the two groups examined in this study and because the same findings emerged for questionnaire and observational measures of responsiveness (measures that were not, for the most part, highly correlated). Moreover, and in accordance with Bronstein's (1988) conclusion regarding the unique impact of fathers on their children's learning environment, the fact that findings emerged for both mothers' and fathers' parenting highlights the importance of including fathers in studies of families.

Interestingly, demandingness was significantly

related to children's problem-focused coping in only one analysis. Although past research suggests that demandingness is associated with several child adjustment outcomes (Steinberg, 1990), it was not a salient variable in predicting child coping in this study. Specifically, demandingness appears to facilitate the development of skills such as impulse control (Steinberg, 1990), rather than the development of skills related to how one manages stressors. Thus, although parental responsiveness and demandingness *both* appear to be critical for the development of a well-adjusted child (e.g., past research has documented numerous positive outcomes of authoritative parenting, which is operationally defined as parenting high in both of these behaviors), each parenting behavior alone appears to be differentially associated with different types of child outcomes (Steinberg, 1990).

Based on Wallander and Varni's (1995) disability-stress-coping model of adjustment, which includes family environment as a social-ecological factor that affects coping strategies, we hypothesized that children from cohesive homes would demonstrate more problem-focused coping strategies, while children from family environments characterized by conflict would use fewer problem-focused coping strategies. In contrast to previous work (e.g., Shulman et al., 1987; Stern & Zevon, 1990), the latter prediction regarding family conflict was not supported. However, both observed and reported family cohesion at Time 1 were found to be positively associated with an increase in children's use of problem-focused coping over time. These results correspond to Stern and Zevon's (1990) finding that a positive perception of the family environment was related to greater use of problem-focused coping and Kliewer and Lewis's (1995) finding of a positive association between a cohesive family environment and children's use of active coping strategies. It is possible that a cohesive family environment promotes a greater sense of security in the child and, as a consequence, a more active engagement with one's environment.

This latter interpretation is similar to the one we reported for responsiveness, and our findings for responsiveness and cohesiveness were very similar. Of course, our measures of these constructs may have been tapping similar characteristics of the family (i.e., these findings are not necessarily independent). Indeed, many of the correlations between the measures of parenting and family environment were significant, and this was particularly true for

the observational measures (e.g., there were significant correlations between observed responsiveness and observed cohesiveness). Although different items were used to measure the constructs, it also follows that highly responsive parents would be more likely to create a highly cohesive family environment.

Several limitations of this study need to be considered when interpreting the findings. First, the measure of coping strategies was a "dispositional" one that did not take into account the type of stressor. Future research should examine coping behaviors in the context in which they occur. Second, it would also be useful to include an observational measure of coping (as suggested by Kliewer et al., 1996), which would provide an objective assessment of coping processes that would supplement self-report measures. Third, this longitudinal study covered a brief time interval and included participants who varied little with respect to age. Thus, these findings may not generalize to older or younger children. Finally, there are clearly other important influences on coping, such as peers, teachers, and cultural factors. The operational definition of coping socialization employed in this study should be expanded to include these influences.

This study has several clinical implications. Most generally, the findings of this study highlight the crucial role of the family in preparing children to confront stressors. Specifically, these results suggest that parental responsiveness and a cohesive family environment may play an important role in children's acquisition of active coping styles, regardless of whether or not the child has a pediatric condition. Interventions should aim to include parents and to enhance parenting and communication skills and the ability of parents to be appropriately responsive to the needs of their child. In other words, the family system, rather than the individual child, may be the most effective target for such interventions. The findings also highlight the importance of including fathers in such interventions. Moreover, determining a family's level of respon-

siveness and cohesiveness will likely provide information about which children are more or less likely to employ problem-focused coping strategies. In particular, children from families with dysfunctional parent-child attachment relationships appear to be at-risk for developing less than optimal coping strategies. Finally, given the positive outcomes associated with problem-focused coping (Holahan et al., 1995), clinicians may also want to encourage parents to teach their children to be more active in confronting stressors, particularly for stressors that are controllable (Carver et al., 1989).

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