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Stress, Appraisal, and Coping in Mothers of Disabled and Nondisabled Children[1]

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The cognitive-behavioral model of stress and coping provided the framework for this study of mothers of physically disabled children (n = 69) *and mothers of nondisabled children* (n = 63). *The first aim was to test for differences between groups in responses to stressful parenting events. As hypothesized, mothers of disabled children reported higher levels of depressive symptomatology. Differences in psychological distress and health status approached significance. The second aim was to explore the mediating influences of coping strategies and cognitive appraisals. As predicted, emotion-focused coping was related to increased psychological distress in mothers of disabled children whereas problem-focused coping was associated with decreased distress. Both relationships were significant even after controlling for differences in type of parenting stressor. Hierarchical regressions showed that 58 and 25% of the variance in psychological distress was explained by the independent variables; however, the predictors were different for the two groups of mothers. Factors that may explain the*

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differential effectiveness of coping and appraisal, and clinical implications of this study are discussed.

KEY WORDS: stress; coping; appraisal; disabled; depression; mothers.

The cognitive-behavioral model of stress provides a theoretical perspective from which to test hypotheses and understand stressful situations (Lazarus & Folkman, 1984; Taylor, 1990). The model suggests that distress is the result of the interaction of a stressful event (stressor), personal resources for coping, cognitive appraisal of the stressful event, and coping responses. Cognitive appraisal refers to the process through which an event is evaluated as to what is at stake (primary appraisal) and with respect to what coping resources and options are available (secondary appraisal) (Lazarus and Folkman, 1984). Coping refers to the cognitive and behavioral efforts made to manage stress. Specific coping strategies serve to manage or alter the source of stress (problem-focused coping) or to regulate stressful emotions (emotion-focused coping) (Carver, Scheier, & Weintraub, 1989; Folkman & Lazarus, 1980; Pearlin & Schooler, 1978).

According to the cognitive-behavioral model, successful coping is a result of a match between appraisal and coping strategy rather than of the relative efficacy of one strategy over another (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). A coping strategy that is effective in one appraised situation may be ineffective in another. For example, when problem-focused coping is used in situations appraised as changeable, lower depression levels are found. Conversely, when emotion-focused coping is used in situations appraised as changeable, elevated depression scores are found (Vitaliano, DeWolfe, Maiuro, Russo, and Katon, 1990).

There is considerable research evidence that distress is two to three times more prevalent in mothers of disabled children than in mothers of nondisabled children (Anstey & Spence, 1986; Singer & Irvin, 1989, for a review). While stress *outcome* has been a focus of investigation, much less is known about the coping *process* in mothers of physically disabled children. The two goals of this study reflect the need for additional information regarding both the stress outcome and the coping process for these mothers. The first is to test for differences between mothers of disabled and nondisabled children in response to stressful parenting events. The second is to investigate which appraisals and coping strategies are associated with adaptive and maladaptive stress responses.

Responses to stress can be physiological, behavioral, or psychological in nature. Dohrenwend (1975) found that individuals who were exposed to severe stress, especially of the kind that parents may experience in caring for chronically ill children, often developed physical problems. A decline in psychological well-being has also been investigated as a response to the stress of mothering a

disabled child. The research suggests that the emotional adjustment of these mothers on the average is negatively affected by the demands of their child's disability (Blacher, 1984; Byrne & Cunningham, 1985; Gallagher, Beckman, & Cross, 1983). For example, Goldberg, Morris, Simmons, Fowler, and Levison (1990) reported that mothers of chronically ill infants were more depressed and had more marital and role adjustment difficulties than mothers of nondisabled children. They also had poorer personal health and a lower degree of perceived maternal competence. Studies have also shown that a very high proportion of mothers with physically disabled children were judged to be depressed when compared to mothers of nondisabled children (Breslau & Davis, 1986; Breslau, Staruch, & Mortimer, 1982).

In research with mothers of disabled children, the term *coping* is often used to refer to related constructs such as coping outcomes or adjustment. In some studies it is used to refer only to resources that are brought to the coping process and not to coping strategies per se. Numerous case studies examining general coping strategies in families of disabled children are available (e.g., Stevens, 1988); however, large-scale correlational studies using comparison groups are less common. Among those available, Frey, Greenberg, and Fewell (1989) found that avoidance and wishful thinking (emotion-focused coping) were related to higher distress, while problem-focused coping was related to lower levels of psychological distress in mothers of physically disabled children. Problem-focused coping was considered the preferred style of coping with disability-related parenting problems. Studies with broader populations have also pointed to the differential effects of problem- and emotion-focused coping in illness-related situations. For example, Felton and Revenson (1984) found that wishful thinking (emotion-focused coping) had a negative effect on adjustment over time in adults with chronic illnesses. In contrast, information seeking (problem-focused coping) had a positive effect on adjustment.

Few studies have investigated several components of the stress and coping process using a comparison group of mothers of nondisabled children. Based on the cognitive-behavioral understanding of stress and coping and on the empirical data with related populations, three hypotheses are proposed: (1) Mothers of disabled children experience more depressive symptomatology than mothers of nondisabled children. In this study depressive symptoms or mood rather than clinical depression (Major Depressive Disorder) was selected as the criterion. Folkman et al. (1991) suggested that an outcome of depressive disorder may be too distal and that a measure of more proximal indicators, such as affect, mood, or feeling, is more likely to relate to the specific effects of coping.

Hypothesis 2 states that emotion-focused coping strategies are associated with increased psychological distress in mothers of disabled children when dealing with stressful parenting situations. Hypothesis 3 states that problem-focused coping strategies are associated with decreased psychological distress in mothers

of disabled children when dealing with stressful parenting situations. It is predicted that these relationships exist even after controlling for differences in types of parenting stress. In addition to the hypotheses, regression models were used to determine the relationships between independent and dependent variables.

METHOD

Subjects

Participating in the study were 132 subjects: 69 mothers of disabled children and 63 mothers of nondisabled children. The participants were predominantly white (73%) and married (83%). The median age of the respondents was 32 years. Most participants were either at-home mothers (40%) or salaried employees (42%). An annual household income of $24,999 or less was reported by 21% of the mothers; $25,000-39,999 by 13%; $40,000–59,999 by 24%; and $60,000 or more by 42%. Educational level varied with 21% holding a master's degree or higher, 33% holding a bachelor's degree, 25% having some college, and 21% holding a high school diploma or lower. For some, the target child was the only child of the family (34%) whereas others had two (43%), three (16%), or four or more (7%) children. Fifty-six percent of the mothers employed no child or household help. Others received 1–15 hours of help per week (13%), 16–30 hours (10%), 31–45 hours (13%), or 46–70 hours (8%). To control for inflated probability levels of multiple t tests on this group of demographic characteristics, the Bonferroni t (adjusted $p < .05$) was used to investigate group differences. The results indicated that the two groups did not differ significantly on demographic variables, including overall social support.

Three variables applied to the disability group only: primary type of disability, severity of disability operationalized by degree of mobility and of cognitive impairment, and level of information regarding the child's medical condition and future (Table I). The New York University Mobility Classification scheme was used to rate the children's mobility level, as indicated in Table I.

Participants were screened for chronic illnesses or persistent physical or neurological conditions prior to the birth of their first child, including arthritis, scoliosis, or osteoporosis. Three mothers were eliminated from the study based on this criterion. The target children were between the ages of birth and 7 years ($M = 5.0$, $SD = 1.61$, for mothers of disabled children; $M = 4.4$, $SD = 2.13$, for mothers of nondisabled children) and were living with their mothers.

Mothers of disabled children were primarily recruited from the records of past or current patients of a metropolitan rehabilitation hospital and of a local outpatient occupational therapy treatment center. Mothers of nondisabled children were primarily recruited from the records of students of a metropolitan

Table I. Frequency and Percentage Distribution of Disability Variables for Mothers of Disabled Children (n = 69)

Variable	Frequency	%[a]
Diagnosis		
Cerebral Palsy	31	44.9
Paraplegia/hemiparesis	16	23.2
Developmental delay	9	13.0
Orthopedic	4	5.8
Quadriplegia	4	5.8
Spina bifida	3	4.3
Brain damage (other than Cerebral Palsy)	2	2.9
Cognitive impairment		
None (IQ ≥ 90)	23	33.3
Mild (80–89)	9	13.0
Moderate (70–79)	11	15.9
Severe (≤ 69; mental retardation)	10	14.5
Missing	16	23.2
Mobility		
I: Independent	21	30.4
II: Independent with devices	15	21 7
III: Therapist assist to ambulate	12	17.4
IV: Dependent in motor skills	12	17 4
V: Dependent in ADL's	4	5.8
Below walking age	3	4 3
Missing	2	2.9
Level of information		
Not informed	0	0.0
Slightly informed	4	5 8
Fairly informed	14	20.3
Quite informed	25	36 2
Very informed	25	36.2
Missing	1	1.4

[a]Percentages may not total 100.0 due to rounding.

preschool and of an infant enrichment program. A small percentage of this group was a convenience sample of mothers referred by other participants. The rate of response was approximately 70% for each group of mothers. No demographic information was collected for the nonparticipants.

Measures

Family Support Scale

The Family Support Scale (Dunst, Jenkins, & Trivette, 1984) is an 18-item measure designed to assess sources of social support. Each item was answered on a 5-point scale ranging from *not at all helpful* (1) to *extremely helpful* (5). An

index of total perceived support was used for the analysis. An internal consistency coefficient of .77, a split-half reliability of .75, and test–retest reliability of .91 were reported by the authors.

Ways of Coping Questionnaire

In the revised version of the Ways of Coping Questionnaire (Folkman & Lazarus, 1988) subjects are asked to write a brief summary of a stressful event and then respond to 66 items using a 4-point Likert scale. The items describe a broad range of behavioral and cognitive coping strategies that an individual might use in a specific stressful episode. The eight strategies represented were classified as either problem focused or emotion focused based on a factor analysis of the data. The factor analytic results confirmed the classifications proposed by Folkman and Lazarus. Problem-focused coping included confrontive coping, planful problem solving, and seeking social support. Emotion-focused coping included distancing, self-controlling, accepting responsibility, escape-avoidance, and positive reappraisal. The percentage of coping efforts accounted for by each strategy, that is, the relative score, was the unit of analysis. Use of the relative rather than the raw score has been recommended (Vitaliano, Maiuro, Russo, & Becker, 1987). The reliability coefficients for the eight coping scales discussed earlier range from .68 to .79. Alpha coefficients for the aggregate problem- and emotion-focused scales are .80 and .81, respectively.

In this study, subjects were asked to choose a stressful encounter that was directly related to the parenting of their (disabled) child and occurred in the past 6 months, and to use that event as the reference when answering the 66 items. Their written summaries of this stressful event were objectively scored by trained raters on four dimensions. First, the location of the event (Where) included (a) medical facility, (b) home, (c) school, and (d) other public place. Second, the persons involved in the event (Who) included (a) professionals, (b) mother and child only, (c) family, and (d) strangers/acquaintances. Third, the nature of the event (What) was classified as (a) physical (problems regarding the child's physical health and/or problems with bodily maintenance activities, e.g., surgery, sleeping), (b) resource (problems in availability of finances or services, e.g., a mother must work based on economic necessity and feels she is not available to her child, mainstreaming problems), (c) family (problems between family members, e.g., child disobeying parent, sibling conflict), and (d) social (problems between mother and/or child and nonfamily members, e.g., child fighting with a peer, fellow shopper making negative comments about the child). Fourth, the reason the event was stressful (Why) involved (a) concern for the child's physical well-being (e.g., concern for a healthy recovery from a high fever), (b) concern for the child's educational or psychological well-being (e.g.,

hope that mainstreaming will promote child's educational achievements, fear that ridicule from others will psychologically hurt the child), (c) concern for the mother's own well-being (concern for any facet of mother's own health, including psychological, physical, emotional, e.g., fear that circumstances will leave mother bitter), and (d) threat to the mother's sense of competence or self-esteem (concern that the woman's abilities especially as a mother are being questioned either by others or by herself, e.g., disappointment/helplessness in not knowing how to handle a situation with her child). For mothers of disabled children a fifth category was added to represent whether the event reported was related or unrelated to the child's disability. For example, a mother's report of a socially stigmatizing event related to her child's disability was scored as related, whereas a mother's report of a sibling argument was scored as unrelated.

The classification of episodes was made by two independent raters. Any episode that was not coded the same way by the two raters was discussed and a code was agreed upon. A reliability check was made after 40 episodes had been coded and then again after 85 episodes and finally after 124 episodes had been coded. Agreement among the raters before discussion ranged from 89–97%.

Appraisal Components

The Appraisal Components (Smith, Lazarus, & Novacek, 1990) is an eight-item measure designed to assess primary and secondary cognitive appraisal of a given event, that is, the stressful parenting situation. Primary appraisal comprises measures of motivational relevance and motivational incongruence. Secondary appraisal comprises self-accountability, other-accountability, problem-focused coping potential, emotion-focused coping potential, and future expectancy. Each appraisal component is measured on a single 11-point Likert scale.

Brief Symptom Inventory (BSI)

The BSI (Derogatis & Spencer, 1982), a brief form of the Symptom Checklist-90-Revised, is a 53-item self-report inventory designed to measure symptomatic psychological distress using 5-point Likert scales. It is scored and interpreted in terms of nine primary symptom dimensions and three global indices of distress. The General Severity Index (GSI) was the global score used as the index of psychological well-being. The depression subscale score was used as the index of depressive symptomatology for this study. The internal consistency reliability coefficients for the nine dimensions range from .71 to .85. A coefficient of .85 is reported for the depression subscale. Test–retest reliabilities range from .68 to .91. A higher score indicates greater symptomatology.

To determine the clinical significance of the GSI, cutoff scores suggested by

the authors were utilized. The following operational rule was used to identify cases of psychological distress (referred to by Derogatis and Spencer as "psychiatric cases"): If the respondent has a GSI score (on female nonpatient norms) greater than or equal to a *T* score of 63, or any two primary dimension scores are greater than or equal to a *T* score of 63. The BSI has recently been used as a screening measure for psychiatric disorder. The authors reported that although research with the BSI in epidemiologic contexts is relatively new, the score that defines a positive case has shown very acceptable levels of sensitivity and specificity across several populations. In the absence of a cutoff score for depression reported by Derogatis and Spencer, the mean depression subscale score from the female psychiatric inpatient norms was used. The mean raw score is equivalent to a *T* score of 69 for female nonpsychiatric subjects.

Preexisting Condition

To screen for preexisting psychological conditions, mothers were asked to complete a checklist of six symptoms (depression, anxiety, phobias, headaches, back pain, and other). They indicated whether or not they had been treated (i.e., hospitalized, medicated, or attended psychotherapy) for each of the conditions before their child's birth, and/or after their child's birth.

The Sickness Impact Profile (SIP)

The SIP (Bergner, Bobbitt, Carter, & Gilson, 1981) is a behaviorally based measure of sickness-related dysfunction. It consists of 136 forced-choice items, designed to reflect the subject's perception of performance on activities involved in daily life. The instrument may be scored at several levels providing individual scores for the 12 categories, two dimension scores (physical and psychosocial), and an overall score. The SIP has shown high test–retest reliability (r = .92) and internal consistency (r = .94). Reliability coefficients for the original individual scales range from .62 to .90. A higher score on the SIP denoted greater symptomatology.

Procedure

Mothers were contacted in person or by phone and asked to volunteer for the study. All instruments were self-administered questionnaires and the order of presentation was counterbalanced to control for fatigue and order effects.

RESULTS

Presentation of the results begins with descriptive data regarding the independent and dependent variable measures. Table II presents the means and standard deviations, and Table III presents the intercorrelations among variables. The classification scheme for the stressful parenting events is reported in Table IV.

Table II. Descriptive Statistics and Group Differences on Independent and Dependent Variable Measures[a]

	Disabled (n = 69)		Nondisabled (n = 63)		
Measure	*M*	*SD*	*M*	*SD*	*t*
	Independent variables				
Family support scale	25.1	9.68	22.9	10.11	1.33
Ways of coping					
Emotion-focused	50 7	15.17	48.3	13.69	0.91
Distancing	9.8	7.61	8.5	6.96	0.99
Self-controlling	13.6	6.14	10.8	5.29	2.69
Taking responsibility	5.6	5.72	9.8	7.90	−3.46[d]
Escape-avoidance	8.7	6.70	5.8	4.88	2.70
Positive reappraisal	12.9	8.24	13.4	8.05	−0.29
Problem-focused	49.3	15.09	51.6	13.76	−0.88
Confrontive	13.8	12.47	13.2	8.75	0.30
Social support	18.1	7.62	18.9	10.13	−0.50
Problem solving	17.4	8.94	19.5	8.72	−1.31
Appraisal components					
Motivational relevance	10.1	1.71	9.3	2.20	2.39
Motivational congruence	8.9	2.47	8.6	2.27	0.65
Self-accountability	4.6	3.71	6.1	3.35	−2.44
Other-accountability	6.3	4.21	4.7	3.47	2.41
Problem coping potential	6.3	3.12	6.6	3.33	−0.49
Emotion coping potential	7.3	2.94	8.1	2.74	−1.64
Future expectancy	5.1	3.40	6.2	3.09	−1.89
	Dependent variables				
Brief symptom inventory					
General severity index	55.2	11.8	52.0	10.08	1.67[b]
Depression subscale	54.6	10.74	51.0	8.68	2.05[d]
Sickness impact profile	7.4	13.59	3.9	4.22	1.95[c]

[a] *df* for *t* tests exceeded 120 for all tests except for Motivational relevance (df = 109). To control for the inflated probability levels of multiple *t* tests, Bonferroni *t* tests were used for investigating group differences on the independent variables.
[b] p = .098.
[c] p = .055.
[d] $p < .05$.

Table III. Intercorrelations among Independent and Dependent Variable Summative Indices[a]

Variable	1	2	3	4	5	6
1. Support (FSS)	—	.06	−.06	−.16	−.09	−.11
2. EFCope (WOC)	.17	—	−.10[d]	.37[c]	.44[d]	.15
3. PFCope (WOC)	−.15	−.10[d]	—	−.36[c]	−.43[d]	−.15
4. Depression (BSI)	.10	.26	−.25	—	.87	.24
5. Distress (BSI)	.08	.18	−.17	.76[d]	—	.28[b]
6. Illness (SIP)	.11	.16	−.15	.31[b]	.40[c]	—

[a] r for mothers of disabled children are to the right of the diagonal and r for mothers of nondisabled children are to the left of the diagonal. FSS = Family Support Scale; WOC = Ways of Coping Questionnaire, Emotion-focused and Problem-focused Scales; BSI = Brief Symptom Inventory, Depression Subscale and General Severity Index; SIP = Sickness Impact Profile.

[b] $p < .05$.

[c] $p < .01$.

[d] $p < .001$.

Tests of Hypotheses

Differences in Symptomatology

As proposed in the first hypothesis, mothers of disabled children reported greater depressive symtomatology than mothers of nondisabled children (Table II). A covariate analysis was performed to control for the effects of income on depression, still yielding a significant main effect for disability condition. To determine the clinical significance of these scores, the number of mothers scoring in the clinical range for depression were identified for each group ($n = 10$ for D group; $n = 2$ for ND group). A chi-square analysis yielded a significant difference between the groups, $\chi^2(1, N = 130) = 4.86$, $p < .05$.

Final support for this hypothesis was provided by analyses comparing the mothers' self-reports of depression before their child's birth and after their child's birth. Five mothers of disabled children and two mothers of nondisabled children reported being treated for depression before their child's birth. The chi-square analysis revealed no significant difference between the mothers on preexisting depression, $\chi^2(1, N = 132) = 1.09$, $p = .30$. However, 14 mothers of disabled children and 1 mother of a nondisabled child reported being in treatment for depression sometime following the birth of their child, $\chi^2(1, N = 132) = 11.44$, $p < .001$. This measure also served as a validation check for the use of the BSI cutoff score for depression reported above.

T tests were completed to investigate differences between the groups on the two remaining dependent variables, health status and psychological well-being (Table II). Both of these tests approached significance, $p = .05$ and .09, respec-

Table IV. Distribution and Chi-Square Values of the Five Category Classification Scheme for the Stressful Parenting Events

Factor	% Disabled (n = 69)	% Nondisabled (n = 63)	χ^2
Where			15.38[c]
Medical facility	33	12	
Home	26	57	
School	23	12	
Other Public place	18	19	
Who			8.21[b]
Professionals	33	12	
Mother and/or child only	26	36	
Family	23	33	
Strangers/acquaintances	18	19	
What			18.72[d]
Physical problems[a]	47	39	
Resource problem	27	5	
Family problem	12	40	
Social problem	14	16	
Why			8.90[b]
Child's educational/psychological well-being	36	17	
Child's physical well-being	26	19	
Mother's competence/self-esteem	24	42	
Mother's well-being	14	22	
Disability related			77.97[d]
Yes	78	0	
No	22	100	

[a]Includes medical problems and activities of daily living problems.
[b]$p < .05$.
[c]$p < .01$.
[d]$p < .001$.

tively. The number of mothers whose psychological well-being scores fell in the clinical range was investigated using the operational definition provided earlier. In this sample, 26 (38%) mothers of disabled children received a positive diagnosis compared to only 10 (16%) mothers of nondisabled children. A chi-square analysis yielded a significant difference score, $\chi^2(1, N = 132) = 7.90, p < .01$.

Coping Efforts

The percentage of emotion- and problem-focused coping used by each group of mothers was virtually the same. For mothers of disabled children, 51% of coping efforts were emotion focused while 49% were problem focused. For mothers of nondisabled children, 48% were emotion focused and 52% were problem focused.

Hypothesis 2 stated that emotion-focused coping strategies are positively associated with psychological distress in mothers of disabled children when faced with stressful parenting situations. The relationship was proposed to exist even after controlling for differences in types of stressors. This hypothesis was supported by a strong correlation between emotion-focused coping and psychological distress ($r = .44$, $p < .001$). A hierarchical multiple regression analysis was completed to confirm that this relationship was significant after accounting for the type of stressful event. Those stressful event classification variables which correlated with distress at the .10 level or below were entered into the regression equation as a set. The emotion-focused coping strategy index was entered next, and its addition to the explained variance in psychological distress was significant (Table V). For mothers of nondisabled children the zero-order correlation between the emotion-focused coping index and psychological distress ($r = .18$) is not significant.

Table VI presents the correlations between the individual strategies that constitute this emotion-focused coping index and psychological distress. To control for the inflated probability of a Type I error with multiple correlations, family-wise Bonferroni tests of significance were used to establish more conservative probability levels. For mothers of disabled children three of the five strategies are associated with increased psychological distress: self-controlling, taking responsibility, and escape-avoidance. No emotion-focused strategy is cor-

Table V. Hierarchical Regression Analyses Testing Hypotheses 2 and 3 for Mothers of Disabled Children ($n = 69$)

Predictors	*df*	Adj R^{2a}	R^2	R^2 change	*F* change for R^2
	Hypothesis 2: Emotion-focused coping				
Stressful event type Where: Medical facility Who: Mother and child Why: Child's ed/psych Disability related	(4, 62)	.19	.24	.24	4.91[c]
Emotion-focused coping	(5, 61)	.27	.32	.08	7.48[c]
	Hypothesis 3: Problem-focused coping				
Stressful event type Where: Medical facility Who: Mother and child Why: Child's ed/psych Disability related	(4, 62)	.19	.24	.24	4.91[c]
Problem-focused coping	(5, 61)	.26	.32	.08	6.76[b]

[a]Adjusted ("shrunken") R^2.
[b]$p < .05$.
[c]$p < .01$.

Table VI. Correlation Coefficients Between Independent Variables and Psychological Distress

Variable	Disabled (n = 69)	Nondisabled (n = 63)
Information[a]	−.23[c]	—
Stressful event type[a]		
Where: Medical facility	.30[d]	.07
Who: Mother and child	−.28[c]	.11
What: Social problem	.15	−.25
Why: Child's ed/psych	−.29[c]	−.08
Disability related	.25[d]	—
Cognitive appraisals[a]		
Problem-coping potential	−.18	−.32[d]
Emotion-coping potential	−.37[e]	−.32[d]
Future expectancy	−.03	−.31[d]
Emotion-focused coping[b]	.44[e]	.18
Distancing	.10	−.18
Self-controlling	.41[e]	−.08
Taking responsibility	.27[c]	.25
Escape-avoidance	.52[e]	.15
Positive reappraisal	−.21	18
Problem-focused coping[b]	−.43[e]	−.17
Confrontive	−.07	.02
Social support	−.20	−.11
Problem solving	−.47[e]	−.16

[a]Two-tailed.
[b]One-tailed.
[c]Bonferroni $p < .10$.
[d]Bonferroni $p < .05$.
[e]Bonferroni $p < .01$.

related with decreased psychological distress. For mothers of nondisabled children no emotion-focused coping strategy reaches significance.

Hypothesis 3 stated that problem-focused coping strategies are negatively associated with psychological distress in mothers of disabled children when faced with stressful parenting situations. This relationship was also proposed to exist even after controlling for differences in type of stressors. This hypothesis was also supported ($r = -.43$, $p < .001$). Once again, a hierarchical regression analysis was performed to partial out the effects of the stressful event itself. Even after the four stressful event classification variables were entered, the relationship between problem-focused coping and psychological distress remained significant (see Table V). For mothers of nondisabled children, the zero-order correlation for these variables ($r = -.17$) is not significant. Of these individual strategies (Table VI), planful problem-solving is associated with less psychological distress for mothers of disabled children.

Fisher Z transformations were used to test the equality of the correlation

coefficients reported in Table VI. The correlations between the following variables were different for the two groups of mothers: self-controlling coping and psychological distress ($p < .01$), escape-avoidance and psychological distress ($p < .05$), and problem solving and psychological distress ($p < .05$). In each case the correlation for mothers of disabled children was the stronger of the two.

Test of the Regression Model

The need for parsimony in multiple regression led to a critical examination of the independent variables. Preliminary regression analyses were undertaken to determine which characteristics were significant, either as simple covariates of stress responses or in interaction with predictor variables. Only those variables (demographic characteristics, stressful event types, appraisals, and coping strategies) correlated with psychological distress at the (unadjusted) .10 level were included in the final regression model for each group of mothers. (The Bonferroni adjustment was not used in establishing eligibility for inclusion in the regression model.) As Table VI reveals, those variables that are significantly related to psychological distress differ for the two groups; therefore, the individual variables entered into the regression models were different for each group.

The entry order of the independent variables in the regression equation was guided by the theoretical model presented earlier, as well as by our interest in assessing the unique contribution of coping strategies. Any significantly related demographic characteristics were entered first because they were preexisting, relatively stable variables. This included disability-related demographic variables for mothers of disabled children. The stressful event variables, that is, the five-category classification variables, were entered next. The Appraisal Components variables, which involved more subjective input by the mothers followed, and significant coping strategies were entered in the last step of the model.

The individual variables composing the most parsimonious model for each group of mothers, and the explained variance for each set of variables and for the complete model are reported in Table VII. Eleven variables accounted for 58% (adjusted $R^2 = .49$) of the variance in psychological distress for mothers of disabled children, while five variables accounted for 25% (adjusted $R^2 = .17$) of the variance for mothers of nondisabled children.

Of the 11 predictor variables for mothers of disabled children 5 were related to *increased* psychological distress. When the event took place in a medical facility and/or when it was specifically related to a disability issue, distress was high. Similarly, self-controlling, taking responsibility, and escape-avoidance coping were associated with increased distress. In contrast, *decreased* distress was associated with the remaining six variables. Specifically, when the event involved the mother and child only and/or when her primary concern was the child's educational/psychological well-being, psychological distress decreased.

Table VII. Hierarchical Regression of Psychological Distress

Predictors	*df*	Adj R^{2a}	R^2	R^2 change	*F* change for R^2
Mothers of disabled children (n = 69)					
Demographics					
Informed	(1, 64)	.05	.06	.06	4.43[b]
Stressful event type					
Where: Medical facility					
Who: Mother and child					
Why: Child's ed/psych					
Disability related	(5, 60)	.22	.28	.22	4.49[c]
Appraisal components					
Emotion-coping potential	(6, 59)	.29	.35	.07	6.69[b]
Coping					
Self-controlling					
Taking responsibility					
Escape-avoidance					
Problem-solving					
Positive reappraisal	(11, 54)	.49	.58	.22	5.72[d]
Mothers of nondisabled children (n = 63)					
Stressful event type					
What: Social problem	(1, 54)	.06	.08	.08	4.41[b]
Appraisal components					
Problem-coping potential					
Emotion-coping potential					
Future expectancy	(4, 46)	.14	.21	.13	2.80[b]
Coping					
Taking responsibility	(5, 45)	.17	.25	.04	2.62

[a]Adjusted ("shrunken") R^2
[b]$p < .05$.
[c]$p < .01$.
[d]$p < .001$.

And when problem-solving coping, positive reappraisal coping, emotion-coping potential appraisal, and information level were high, distress was low.

In contrast, all variables comprising significant steps of the analysis for mothers of nondisabled children were related to *decreased* distress. They included the appraisals of problem-coping potential, emotion-coping potential, and future expectancy. Similarly, social problem events were associated with decreased distress.

DISCUSSION

The present research supports a cognitive-behavioral understanding of stress and coping. Specific coping strategies, cognitive appraisals, and stressful event

types play an important role in mediating parental adjustment to the demands of parenting a child with a physical disability.

As hypothesized, greater depressive symtomatology is reported in mothers of disabled children compared to mothers of nondisabled children. This is consistent with previous findings (Breslau & Davis, 1986; Chetwynd, 1985; Wilton & Renaut, 1986). The deleterious effects of the stressors experienced by mothers of disabled children is further supported by the significantly higher number of mothers of disabled children who score in the clinical range on both the depression subscale and on the overall psychological distress index. The second hypothesis, which predicted positive relationships between emotion-focused coping and psychological distress, is also supported, even after controlling for differences in stressful parenting events. The association of three emotion-focused coping strategies (escape-avoidance, taking responsibility, and self-controlling) with increased distress confirms the results of Frey et al. (1989) and of Felton and Revenson (1984) among others. These three strategies may keep the mother involved in a cycle of self-blame and withdrawal, internalizing feelings of frustration, rather than freeing energies for problem-solving which could lead to enhanced feelings of competence and to a sense of control.

The third hypothesis, which proposed a negative relationship between problem-focused coping and psychological distress, is also supported even after controlling for differences in type of stressful event. Planful problem solving appears to be a critical strategy. According to the cognitive-behavioral model, stress is reduced only if there is a fit between one's appraisal of an event and the coping strategies employed. It may be that emotion-focused coping strategies are a poor fit with the appraisals of mothers of disabled children, while problem-focused coping strategies are the more effective match for their appraisals. Despite the different focus of the two categories of coping, it is important to not artificially dichotomize affective and problem-solving coping. Emotion-focused coping can facilitate problem-focused coping if it is used to manage emotions that would otherwise impede problem-focused activity (Lazarus & Folkman, 1984).

The results of the regression analyses for the two groups of mothers suggest different processes for negotiating stress. For mothers of disabled children, information level regarding the child's disability predicts psychological distress. When parents receive limited information from professionals, they generally continue to wonder and worry about what their child will be like in the future. In a study by Baxter (1986), parents indicated that the most important type of help they had received from professionals was information, and that this help was more important than emotional support.

Four stressful event variables account for a significant percentage of the variance in maternal distress. In addition, the appraisal of emotion-focused coping potential, that is, the extent to which the mother believes she could psycho-

logically adjust to the stressor, is associated with lower levels of distress. The coping strategies which are theoretically associated with this appraisal (i.e., emotion-focused strategies) are not effective in reducing distress. It may be hypothesized that the mothers recognize the potential for coping action, as evidenced by their appraisal scores. However, given the special needs of their children, they may be lacking in the information, services, or resources necessary to mobilize their appraisals. Thus, expected coping action either does not occur, is mediated by another strategy, or is ineffective (with the one exception of positive reappraisal). The one problem-focused coping strategy entered, that is, problem solving, is associated with lower stress levels.

The analyses for mothers of nondisabled children point to appraisals as a critical determinant of distress. In the regression equation, the degree to which they believed they could alter the situation to make it better, believed they could psychologically adjust to the situation, and believed that the problem would resolve in the future all lead to less distress. In general, it appears that cognitive appraisals serve as effective mediators of parenting stress, perhaps by providing these mothers with a sense of control. The coping strategies that follow were less critical for negotiating their responses.

The results of this study have strong implications for clinical interventions with both groups of mothers. A comprehensive cognitive-behaviorally based intervention program could have several components. One element should be dissemination of information to the mothers, such as medical, educational, and resource information that is appropriate to the child's age. Appraisal training could include helping mothers to distinguish between global stressors and specific stressful situations, and between their changeable and unchangeable aspects (Folkman et al., 1991). The third component is coping training. Instruction in the use of those strategies associated with decreased stress, such as positive reappraisal and problem solving, would be critical. For example, the stressors facing mothers of physically disabled children are often chronic and cannot be mastered. In such situations effective coping involves coming to terms with undesirable outcomes rather than mastering them, such as in positive reappraisal. In addition, teaching mothers to make more appropriate matches between appraisals and coping strategies may diminish the ill effects of taking responsibility, escape-avoidance, and self-controlling found in this sample of mothers. Additional strategies to be taught could include the cognitive strategies of selective attention, reframing, and social comparison, and the behavioral strategies of humor, religion, and exercise (Taylor & Lobel, 1989).

Several limitations of this study require qualification of these conclusions. First, to the extent that this sample varies from the general population (e.g., on income) generalizability may be limited. Second, this study relied exclusively on self-report data. Third, no conclusions regarding causality can be drawn. Finally, our assessment may have underestimated the effects on physical health. The

measure used herein may not be sensitive enough to low levels of symptomatology.

Future research should include more child characteristics, such as behavior. The mother's level of information could be operationally defined by several specific indices rather than by one global index. There is a need for the continued study of mothers', fathers', and other family members' modes of coping with a disabled child. To further isolate the fit between appraisal and coping in a specific role domain such as parenting, future research may more specifically limit the situations under study. Finally, a continuation of the recent focus on benefits created by the presence of such a child, such as increased family cohesion, increased involvement, and personal growth (Summers, Behr, & Turnbull, 1989), is needed.

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