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Development of a Brief Coping Checklist for Use with Pediatric Populations

Anthony Spirito,[1] Lori J. Stark, and Connie Williams
Rhode Island Hospital/Brown University Program in Medicine

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Although the process of coping and utilization of coping strategies has received widespread attention in the adult literature, there is a relative dearth of information on these processes in children and adolescents. As the importance of assessing and teaching coping strategies becomes apparent in behavioral medicine with adults, such investigations need to be extended to pediatric populations. The present study describes the development of a brief coping checklist. Preliminary psychometric investigations conducted with healthy adolescents demonstrated adequate reliability at 3-day, 7-day, 14-day, and 10-week intervals and concurrent validity with previously established measures of coping. The utility of the checklist with pediatric patients and in particular chronically ill children is also examined.

KEY WORDS: coping; children; adolescents; chronic illness.

Children and adolescents with acute and chronic illnesses are confronted with a number of tasks and stressors specific to their illness, such as dealing with painful symptoms and procedures, adjusting to hospitalizations, and establishing relationships with health care providers (Moos, 1982). Further, it has been hypothesized that their response to those stressors may influence the course of their illness as well as their adjustment to it (Holroyd & Lazarus, 1982).

Thus far in the pediatric literature, researchers have focused on teaching children coping strategies, particularly in response to painful medical

[1]All correspondence should be sent to Anthony Spirito, Child & Family Psychiatry, Rhode Island Hospital, 593 Eddy Street, Providence, Rhode Island 02903.

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procedures (e.g., Jay, Elliot, Ozolins, Olson, & Pruitt, 1985). Although this focus has been successful in reducing behavioral signs of distress and anxiety, further research is necessary to understand the natural and spontaneous process of coping in children and to identify useful strategies for the wide range of stressors that must be accommodated following diagnosis of an illness.

Several avenues of further research appear fruitful to explore. First, the study of natural coping strategies employed by children and adolescents is an important means of adding to our knowledge about coping with pediatric illness. Kaloupek and Stoupakis (1985) are advocates of this approach and report such an assessment with adult blood donors. Using a similar method Brown, O'Keeffe, Sanders, and Baker (1986) investigated the spontaneous cognitive coping strategies reported by children in response to a hypothetical stressor (i.e., an injection) and a recent personal stressor. They found that the number of cognitive strategies employed increased with age; however, "catastrophizing" occurred at high rates across all ages. Thus, the study of natural coping processes could provide important information about potential intervention strategies which may be enhanced or taught to pediatric patients. Such an approach may also help in determining which coping strategies may be better for different situations encountered by patients. Some preliminary research in this area has been conducted by Viney and Westbrook (1982, 1984) with adults.

Second, the process of coping over the course of a chronic illness is also an important area of investigation. The coping literature is particularly deficient in studies which examine changes in coping with individuals over the course of an illness. Such studies are particularly necessary if one conceptualizes coping as a process that changes over time and within the same individual as a function of the stressors encountered, the person's appraisal of these stressors, and the efficacy of the particular coping strategies employed (e.g., Lazarus & Folkman, 1984). One impediment to such investigations of coping is that most current coping inventories (e.g., *The Ways of Coping:* Aldwin, Folkman, Shaefer, Coyne & Lazarus, 1980; Vitaliano, Russo, Carr, Maiuro, & Becker, 1985) are quite long. The length of these instruments limits their widespread use in clinical practice and often prohibits repeated administration because of patient acceptability. Thus, the development of a brief coping measure would be an important contribution to clinical practice.

Some brief interview measures of coping (e.g., Kaloupek, White, & Wong, 1984) and card-sort assessments of coping (Viney & Westbrook, 1984) have been described in the literature with adults. Stone and Neale (1984) have also developed an open-ended daily coping measure which taps eight classes of coping strategies. Subjects are asked if they use any of the eight categories in coping with a recently encountered stressor. If a category was employed,

a description of the particular thought and/or behavior used is then elicited from the subject. Such an approach is a promising means of attempting to assess daily variation in coping strategies.

In order to facilitate investigation of the process of coping skill development in children and adolescents, a brief coping scale to be used by children and adolescents was designed. The development and psychometric properties of this scale, the *Kidcope,* with healthy adolescents is described. Since coping in this study was conceptualized as a process measure, and not a stable personality trait, low to moderate correlations on retesting were predicted depending on the length of time between test administration. In addition, the potential utility of the Kidcope with children and adolescents with a variety of chronic illnesses, particularly diabetes, is presented.

METHOD

Selection of Preliminary Checklist Items

Initially, a pool of 24 items was generated which appeared to adequately tap the coping styles commonly delineated in factor analytic studies of coping scales (e.g., Billings & Moos, 1981; Stone & Neale, 1984; Vitaliano et al., 1985; Tobin, Holroyd, & Reynolds, 1984). Such scales defined coping as changing cognitive and behavioral strategies used to master stressors, as discussed by Lazarus and Folkman (1984). The items selected were designed to tap specific coping strategies such as problem solving, social support, emotional regulation, avoidance, and distraction. The item pool was purposely small to ensure that a brief questionnaire would result. For the purpose of scale development, the scale was administered to a normal population of 134 ninth-grade students attending a public school. The majority of students were 14 years old and from predominantly middle-class white families. The scale was then factor analyzed using a principal factor analysis rotated to a varimax solution to determine whether this abbreviated coping scale would yield similar factors to those that have emerged in factor analytic studies of longer coping scales.

In order to extract the proper number of factors, three criteria were considered: eigenvalue of the factor >1, a factor loading of 0.50 or above on any given factor, and the logic and interpretability of the resulting factor structure. Using these criteria, six factors were selected resulting in a total of 13 items. The items that loaded on these factors suggested commonly discussed coping styles including problem solving, social support, distraction, denial/avoidance, blame, and passive acceptance/wishful thinking. Moderate internal consistency was demonstrated for the first three factors (r =

.67, .63, and .62) while somewhat lower correlations (r = .22, .31, and .42) were found for the other three factors.

Although this attempt to develop a brief scale minimizing item redundancy within each coping category seemed somewhat promising, the factor analysis revealed some factors and some items that were conceptually less clear than one would have hoped. Consequently, the decision was made to abandon our initial attempt at developing a brief coping scale with several items tapping each coping category. Instead, 10 commonly mentioned coping categories in the coping literature were selected conceptually. Items from the original scale were then rewritten so that each of the coping categories would have an adequate description of the different types of strategies utilized within that category. The 10 coping categories were conceptualized as problem-solving, distraction, social support, social withdrawal, cognitive restructuring, self-criticism, blaming others, emotional regulation, wishful thinking, and resignation. For the stressor selected, two questions were posed tapping the frequency with which the respondent utilized each of the 10 coping strategies and the efficacy of each. A 4-point (*not at all, sometimes, a lot,* and *almost all the time*) and a 5-point (*not at all, a little, somewhat, pretty much, very much*) Likert-type format were employed to examine frequency and efficacy, respectively.

The development of this checklist, entitled the Kidcope[2] was believed to have the advantage over the previous scale in that it was even briefer than the 13-item scale, was more clinically relevant, covered a broader range of coping strategies, and was conceptually clearer. Although such qualities of the scale are commendable, the psychometric properties of such a checklist are much more problematic. In particular, with only one item tapping each coping strategy, demonstrating reliability of each strategy is especially difficult. Indeed, one of the reasons for the development of longer coping scales with a number of items for each coping category is to establish adequate test–retest reliability. However, since coping is a process that changes over time and according to situational demands, high correlation coefficients on a test–retest format may not be the most appropriate indicator of the soundness of a coping checklist (Moos & Billings, 1982; Stone & Neale, 1984). Nonetheless, a number of studies examining the test–retest reliability of this new 10-item checklist were conducted as were a series of validity studies.

Subjects and Procedure

A number of different normal samples were used to examine the reliability and validity of the measure. In addition, the scale was administered

[2]Copies of The Kidcope can be obtained from the first author.

to a sample of pediatric patients in order to examine the usefulness of the scale with medical populations. The different subsamples and the test development procedure used with each sample are described below. The hospital human investigations committee approved separate research protocols for the different subject populations.

Group A. The 60 children in this group consisted of 33 boys (55%) and 27 girls (45%). These students were in Grades 10, 11, and 12 and they ranged in age from 15 to 18 with a mean age of 16.9 years. They attended a public high school in a suburban/rural area. Most of the children were from white, lower-middle, and middle-class families. Subjects in this sample were administered the Kidcope on two occasions separated by 3 days. On the second administration, these subjects were asked to recall the stressor they described 3 days earlier and complete the Kidcope according to how they coped with this event.

Group B. There were 91 children in four ninth-grade classrooms at a suburban Catholic grade school in this sample. Most of the children were from white, middle-class families and were either 14 or 15 years with a mean age of 14.4. There were 49 boys (54%) and 42 girls (46%) in this sample. Two of the classes ($n = 42$) in this sample were initially administered the Kidcope and the Coping Streategies Inventory (CSI: Tobin, Holroyd, & Reynolds, 1984). The CSI is a 72-item scale with a 5-point Likert format. Factor analyses have revealed an eight-factor solution including factors labeled problem solving, cognitive restructuring, emotional expression, problem avoidance, social support, wishful thinking, social withdrawal, and self-blame. A mean test-retest correlation of .73 over a 2-week period for 178 college students responding to the same personal situation has been reported (Tobin et al., 1984). The validity of the CSI has been demonstrated by its ability to differentiate several symptomatic from normal samples (e.g., depressed vs. nondepressed, headache vs. nonheadache; Tobin et al., 1984). This scale was selected to examine the concurrent validity of the Kidcope. The sequence of the administration of the Kidcope and CSI were counterbalanced to control for order effects. These 42 subjects completed another Kidcope 1 week following the original administration to examine the test-retest reliability of the scale. The remaining 49 students in the remaining two classrooms completed the Kidcope and the Adolescent Coping Orientation for Problem Experiences (ACOPE: Patterson & McCubbin, 1983). The ACOPE is a 54-item scale, specifically designed for adolescents, with a 4-point Likert format consisting of 12 factors. The 12 factors include ventilating feelings, seeking diversions, developing self-reliance, avoiding problems, developing social support, solving family problems, spiritual support, investing in close friends, engaging in demanding activity, relaxing, seeking professional support, and being humorous. Adequate alpha coefficients for the various scales of the ACOPE have been reported while the validity

of the scale has been partially supported by examining the relationship between substance use and coping strategies (Patterson & McCubbin, 1983). This scale was selected in order to provide another test of concurrent validity. Once again, the order of administration of these two scales was counterbalanced.

Group C. This sample consisted of 142 ninth-grade students attending three public high schools. There were 75 boys (53%) and 67 girls (47%) in this sample. The children who were sampled were predominantly white, but their family social class varied from lower class to middle class. They ranged in age from 13 to 16 years with a mean age of 15.3. They were administered the Kidcope on two occasions separated by 10 weeks. The students selected a personal event with which they had been coping within the preceding month, and responded to the Kidcope accordingly. Ten weeks later they were asked to complete the Kidcope again in response to another personal stressor.

Group D. Seventy-two ninth and tenth graders composed this sample. The 32 boys (44%) and 40 girls (56%) were all students at a suburban public high school. Most of the children were from white lower-middle and middle-class families. They ranged in age from 14 to 17 years with a mean age of 15.4 years. Subjects in this group completed the Kidcope twice during one sitting using thier own personal stressor, like Groups A and B, as well as a standard stressor. Two variations of the standard stressor were employed: being grounded for the weekend for failing to do chores, or being grounded for the weekend for violating curfew. The 34 students completed the Kidcope using the second stressor 2 weeks later. The order of administration fo the two standard stressors was varied across the two subsamples.

Group E, Pediatric Patients. Thirty-eight pediatric patients referred for psychological evaluation for a variety of emotional sequelae associated with their disease were also administered the Kidcope as part of the initial evaluation prior to any intervention. There were 19 males and 19 females in this group from a range of socioeconomic classes. They ranged in age from 10 to 18 years with a mean age of 13.7 years. Medical diagnoses including abdominal pain (6) inflammatory bowel disease (5), headaches (7), cancer (3), encopresis (3), hemophilia (2), assorted pain complaints (5), and other problems such as sleep disorders and seizures. As part of a clinical interview, patients were asked to complete the Kidcope in response to a specific stressor associated with their disease. These patients completed only the frequency items on the Kidcope.

Group F, Diabetic Camp. The Kidcope was administered to 34 children attending a 2-week diabetes camp. The diabetic children ranged in age from 12 to 18 years with a mean age of 14.4 years. Time since diagnosis ranged from 3 months to 15 years with a mean of 5.8 years. The scale was administered throughout the first week of each camp either individually or to

small groups of five campers. The campers were asked to select a problem related to their disease which had occurred in the previous month and to complete the Kidcope items accordingly.

RESULTS

Reliability

Table I presents the Pearson test–retest correlations of the Kidcope administered either 3 days, 7 days, or 10 weeks apart. In each of these assessments the correlations between responses to the Kidcope are based on an individually identified stressor by the adolescent, both initially and again on the retest. As can be seen in this table, moderate (.41) to fairly high (.83) correlations were obtained on the majority of frequency ratings over short periods (3 to 7 days) with efficacy ratings being more variable.

Table I also reflects the test–retest correlations obtained over a 10-week period. Personal stressors were chosen on each occasion. As expected, the correlations (.15 to .43) are lower than those obtained at shorter intervals. Test–retest correlations for the Kidcope administered 2 weeks apart using standard scripts describing two similar stressors (conflict with parents) hypothesized to be commonly faced by adolescents are also presented in this table. Again, a variety of items were moderately correlated while some items were not well related across the two situations described.

Validity

The validity of the Kidcope was assessed via comparisons with previously standardized measures of coping, the Coping Strategies Inventory (CSI), and Adolescent-Coping Orientation for Problem Experiences Inventory (ACOPE). The results of these correlational analyses are presented in Tables II and III. All Kidcope measures for the validity analyses were completed based on a personally chosen stressor. Since several of the CSI subscales are quite similar to eight of the Kidcope coping categories, we were able to examine the correlations obtained on these eight scales. Table II presents the Pearson product-moment correlations between the respective subscales of the Coping Strategies Inventory and the Kidcope. The highest correlations were obtained between seven of the eight predicted subscales of the CSI and the corresponding Kidcope items. The item of the Kidcope expected to tap each dimension of the CSI is underlined.

Since the subjects in the study were adolescents, the relationship between the factor scores of the ACOPE (Adolescent Coping Orientation for

Table 1. Test-Retest Correlations for Frequency and Efficacy of Kidcope Items Over 3-Day, 1-Week, 2-Week, and 10-Week Periods

	3 days apart, same personal stressor (n = 60)		1 week apart, same personal stressor (n = 42)		2 weeks apart, similar standard stressors (n = 34)		10 weeks apart, different personal stressors (n = 142)	
Kidcope item and content	Frequency[a]	Efficacy[b]	Frequency	Efficacy	Frequency	Efficacy	Frequency	Efficacy
1. Distraction	.64[c]	.45[c]	.49[c]	.50[c]	.21	.21	.28[c]	.34[c]
2. Social withdrawal	.64[c]	.54[c]	.70[c]	.20	.04	.39	.30[c]	.27[c]
3. Cognitive restructuring	.60[c]	.61[c]	.42	.01	.47	.30	.17	.24[c]
4. Self-criticism	.69[c]	.25	.83[c]	.26	.46	.55[c]	.15	.28[c]
5. Blaming others	.66[c]	.71[c]	.07	.15	.37	.58[c]	.23	.07
6. Problem solving	.72[c]	.74[c]	.41	.40	.32	.52[c]	.27[c]	.30[c]
7. Emotional regulation	.56[c]	.69[c]	.64[c]	.30	.31	.52[c]	.43[c]	.34[c]
8. Wishful thinking	.75[c]	.30	.57[c]	.04	.08	.48	.21	.24[c]
9. Social support	.63[c]	.58[c]	.41	.30	.56[c]	.54[c]	.43[c]	.34[c]
10. Resignation	.57[c]	.51[c]	.50[c]	.20	.13	.55[c]	.18	.12

[a]Refers to correlation between how often respondent used this strategy at Time 1 with how often at Time 2.
[b]Refers to correlation of respondent's report of how helpful a particular strategy was across Time 1 and Time 2.
[c]$p < .05$ (Bonferroni corrected).

Table II. Correlation Matrix: Coping Strategies Inventory (CSI) and Kidcope (N = 42)

	Kidcope frequency items[a]									
CSI scales	1	2	3	4	5	6	7	8	9	10
Problem solving	.04	.11	.30	−.08	.16	.46	−.01	−.03	.02	−.22
Cognitive restructuring	−.20	.01	.58[b]	−.16	.05	.21	−.15	−.14	.16	−.22
Express emotions	−.16	−.01	−.15	.33	.05	.28	.55[b]	.46	.15	−.20
Social support	−.09	−.50	.13	−.10	.07	.26	.14	.08	.55	−.43
Problem guidance	.33	.30	.15	.34	.13	−.14	.20	.10	−.12	.34
Wishful thinking	.12	.13	−.07	.47	.07	.19	.48	.63[b]	.13	.11
Self-criticism	−.03	.33	−.04	.77[b]	.13	.15	.42	.47	−.14	.18
Social withdrawal	.14	.73[b]	−.10	.39	.02	−.01	.33	.25	−.37	.29

[a]Kidcope item key: 1 = distraction, 2 = social withdrawal, 3 = cognitive restructuring, 4 = self-criticism, 5 = blame others, 6 = problem solving, 7 = emotional regulation, 8 = wishful thinking, 9 = seeking social support, 10 = resignation. Underlined items indicate correlations hypothesized to be highest between two scales.

[b]$p < .05$ (Bonferroni corrected).

Table III. Correlation Matrix: ACOPE and Kidcope (N = 49)

	Kidcope frequency items[a]									
ACOPE items	1	2	3	4	5	6	7	8	9	10
Ventilating feelings	.01	−.18	−.07	−.11	.39	−.10	.50[b]	.28	.22	.01
Seeking diversions	.62[b]	.40	.16	−.07	.05	−.09	−.08	.43[b]	−.38	.35
Developing self-reliance	−.22	−.16	.22	−.07	−.14	.34	.01	−.17	−.14	−.01
Developing social support	−.10	−.37	.08	.01	.47[b]	.06	.30	−.16	.48[b]	−.39
Solving family problems	−.22	−.15	.20	−.19	.06	−.11	.36	−.07	.64[b]	−.28
Avoiding problems	.28	.18	−.02	−.04	.26	−.24	−.03	.18	−.42[b]	.17
Seeking spiritual support	−.09	−.25	.01	−.03	.06	.12	.29	.02	.51[b]	−.31
Investing in close friends	.03	−.03	.11	−.09	.11	−.01	.09	.03	.31	−.27
Seeking professional support	−.08	−.08	−.18	−.23	−.05	.24	.24	−.15	.24	−.25
Engaging in a demanding activity	−.08	−.20	.12	.20	.08	.13	.24	.15	.14	.12
Being humorous	.05	−.13	.19	−.04	.10	.02	.21	.13	.08	.03
Relaxing	.45[b]	.14	.08	−.11	−.02	−.04	−.05	.33	−.34	.19

[a]Kidcope item key: 1 = distraction, 2 = social withdrawal, 3 = cognitive restructuring, 4 = self-criticism, 5 = blame others, 6 = problem solving, 7 = emotional regulation, 8 = wishful thinking, 9 = seeking social support, 10 = resignation. Underlined items indicate correlations hypothesized to be highest between two scales.

[b]$p < .05$ (Bonferroni corrected).

Table IV. Intercorrelations Between Frequency and Efficacy Scales of Kidcope

Kidcope efficacy items	Kidcope frequency items									
	1	2	3	4	5	6	7	8	9	10
1. Distraction	.43	.14	−.04	.03	−.02	.03	.14	.02	.07	.04
2. Social withdrawal	−.02	.19	−.13	−.08	.03	−.14	.07	.01	−.24	.04
3. Cognitive restructuring	.08	.13	.63	−.13	.08	.21	.10	.11	.19	.11
4. Self-criticism	−.05	.02	−.01	.24	−.06	−.04	.07	−.10	−.02	−.02
5. Blaming others	.05	.13	−.01	.01	.55	.07	.15	−.07	.05	.01
6. Problem solving	.15	.15	.19	.12	.12	.70	.19	.07	.38	.11
7. Emotional regulation	.06	.09	−.08	−.05	.07	.11	.61	.05	.15	−.03
8. Wishful thinking	−.01	.03	−.13	.05	.09	−.01	.12	.24	.07	.01
9. Social support	.18	.06	.13	.10	.08	.35	.25	.10	.75	.07
10. Resignation	.02	.07	.10	.01	−.05	−.12	−.01	.01	−.04	.30

Problem Experiences) and the items of the Kidcope were also examined. As can be seen in Table III, most of the highest correlations between the scales were obtained between the predicted factor scores of the ACOPE and the Kidcope items. (Since several of the ACOPE scales corresponded to the Kidcope items, at times more than one correlation was predicted between the ACOPE and Kidcope and they are indicated in Table III). However, the correlations were not as strong as found with the CSI. This was expected, however, since the factor scores on the ACOPE are more specific and less congruent with the ones chosen for the Kidcope.

Coping Efficacy and Frequency of Use

The relationship between the frequency with which each coping strategy was employed and the efficacy rating of the coping strategy was also examined. Presumably, those coping strategies felt by individuals to be most effective would be the ones employed most frequently. Consequently, it was predicted that the highest correlations between frequency and efficacy would be obtained for each coping strategy. Table IV presents the correlation matrix between frequency and efficacy of coping strategies on a sample of 609 of the adolescents who had completed the Kidcope in response to a personal stressor. As can be seen in this table, in every case, the highest correlations were obtained between the frequency and efficacy of each coping strategy.

Table V. Percentages of Males (n = 69) and Females (n = 75) Reporting on the Frequency and Efficacy of Kidcope Strategies Utilized for a Standard Stressor (Grounding by Parents)[a]

	Frequency (%)		Efficacy (%)	
Kidcope items	Males	Females	Males	Females
1. Distraction	54	48	50	48
2. Social withdrawal	38	41	36	33
3. Cognitive restructuring	44	42	48	49
4. Self-criticism	45	44	35	10
5. Blaming others	33	22	21	18
6. Problem solving	49	49	56	64
7. Emotional regulation	48	74[b]	37	63[b]
8. Wishful thinking	60	76	35	35
9. Social support	31	44	42	60
10. Resignation	44	37	40	19[b]

[a]Percentages refer to those adolescents reporting they used the strategy "a lot of the time" or "almost all the time" (Frequency) and those reporting it was "pretty much" or "very much" helpful (Efficacy).
[b]Chi-square analyses revealed a significant difference at $p < .05$ (Bonferroni corrected).

Table VI. Percentage of Pediatric Patients, Children Attending Diabetes Camp, and Control Subjects Reporting They Used The Coping Strategies "A Lot Of The Time" or "Most Of The Time"[a]

Kidcope items	Frequency scale (%)		
	Pediatric patients (n = 38)	Diabetes camp (n = 34)	Controls (n = 68)
1. Distraction[b,d]	76	29	31
2. Social withdrawal[b,d]	62	18	27
3. Cognitive restructuring	32	56	59
4. Self-criticism[b,c]	16	9	50
5. Blaming others	21	9	12
6. Problem solving	66	35	53
7. Emotional regulation	55	41	35
8. Wishful thinking	76	47	57
9. Social support	55	29	44
10. Resignation	47	59	32

[a]Chi-square analyses revealed a significant difference at the $p < .05$ level (Bonferroni corrected) for:
[b]Pediatric patients versus controls.
[c]Diabetes camp versus controls.
[d]Pediatric patients versus diabetes camp.

Coping and Sex Differences

Since studies have shown sex differences in the use of coping strategies, the frequency with which male and female utilized coping strategies was also examined as an indirect means of examining validity. The data from subjects who completed the Kidcope with a standard stressor (grounding by parents) were included for analyses. Table V demonstrates only a few significant differences in the frequency and perceived efficacy of coping strategies by sex. Using chi-square analyses, females were found to employ emotional expression ($\chi^2 = 9.0, p < .05$, Bonferroni corrected)[3] more frequently than males and reported emotional expression more helpful as a coping strategy than males ($\chi^2 = 8.2, p < .05$, Bonferroni corrected). Males reported resigned acceptance as a more helpful coping strategy than females ($\chi^2 = 6.72, p < .05$, Bonferroni corrected).

Coping in Pediatric Patients

Table VI presents the results obtained from a group of pediatric patients (n = 38; mean age = 13.7) referred for psychological evaluation who

[3]Due to the many correlations computed and statistical comparisons made in this paper, the Bonferroni correlation was employed as a more conservative approach to calculating statistical significance.

reported coping strategies used for a variety of disease-related stressors. These patients were compared to a subsample of the younger adolescents (in order to match age more closely) who reported on coping strategies used for a problem at school (n = 68; mean age = 14 years). Chi-square analyses revealed statistically significant differences between the two groups on distraction (χ^2 = 11.68, $p < .05$, Bonferroni corrected), social withdrawal (χ^2 = 10.63, $p < .05$ Bonferroni corrected), and self-criticism (χ^2 = 10.73, $p < .05$, Bonferroni corrected). Table VI also presents the results using diabetic children attending a camp versus the same control sample. Chi-square analyses revealed a statistically significant difference between the two groups on self-criticism (χ^2 = 14.89, $p < .05$, Bonferroni corrected). In addition, the diabetes camp patients were compared with the pediatric patients on frequency of coping strategy utilization. Chi-square analyses revealed statistically significant differences on distraction (χ^2 = 14.07, $p < .05$, Bonferroni corrected) and social withdrawal (χ^2 = 12.75, $p < .05$, Bonferroni corrected).

DISCUSSION

The purpose of the present study was to develop a brief coping checklist for clinicians working with children and adolescents. In order to develop a brief scale, a series of studies were conducted on the reliability and validity of the measure. As one would expect, when examining the temporal dimension of coping, the highest correlations were obtained when subjects rated the same personal stressors 3 days apart (Table I; range = .56 to .75). Somewhat lower correlations were obtained with the same personal stressor rated 1 week apart (Table I; range = .41 to .83, with one exception .07 blaming others). On retest, the subjects were asked to recall how they cope with the presenting problem they described a week previously. The low test–retest correlation on blaming others may reflect the fact that a week following the event, adolescents may be more able to view the situation in a rational manner and thus may be less prone to use a strategy such as blaming others. Finally, as predicted, the lowest test–retest correlations were obtained after 10 weeks when adolescents picked different personal stressors (Table I; range = .15 to .43). This finding fits with the assumption that coping is a process measure with only limited stability within individuals over time (Lazarus & Folkman, 1984) and affected by other individual and situational variables at the time of measurement. Overall, the reliability findings are in the range of other studies examining test–retest reliability with a process measure. For example, Viney and Westbrook (1982), using six coping strategies, found test–retest correlations, over a 1-month period, ranged from .30 to .54. In addition, since a brief checklist precludes other means of examining reliabil-

ity such as internal consistency and factor analytic techniques (Moos & Billings, 1982), a reasonable level of reliability seems to have been established by these studies with adolescents. The one aberrant correlation found on test-retest with the self-blame coping strategy suggests further work needs to be conducted on the reliability of this item and therefore it should be interpreted with caution.

As another means of attempting to examine the reliability of the Kidcope, consistency in the use of coping strategies across similar situations was also examined. In order to do this, scripts of two common stressors (grounding by parents secondary to two different situations) were devised. Table I shows moderate correlations in the use of most of these coping strategies across these two situations. Notable exceptions were social withdrawal (r = .04) and wishful thinking (r = .08). These lower test-retest correlations may be a function of several factors. First, one of the standard stressors situations involved peer activities while the other did not. Thus, the low social withdrawal correlation may reflect the fact that the situations varied in terms of their level of social (peer) interaction. Second, one of the situations (i.e., completing chores) might have been perceived by adolescents as more readily solvable. This interaction is also limited to the adolescent and his or her parents. On the other hand, breaking curfew has an impact on both the adolescent, his or her parents, and peers. Thus, wishful thinking might be a strategy more employed under these circumstances because complying with parental wishes might potentially have a negative impact on peer relationships, at least as perceived by the adolescent. Overall, the variability in the findings across the standard situations suggest that despite efforts to develop comparable stressors, people appraise situations differently.

Preliminary findings of the validity studies are also promising. As expected, the correlations between the primary coping strategies of the Coping Strategies Inventory and the majority of the 10 items of the Kidcope were moderate to high (range = .33 to .77). Thus, it appears that a single item might be able to efficiently tap, at least for clinical purposes, a category of coping strategies. The correlations on the coping scale for adolescents (ACOPE) and the Kidcope were somewhat lower than those between the Kidcope and the Coping Strategy Inventory. This was predicted since the primary coping strategies of the Coping Strategies Inventory are quite similar and based on the same conceptual reasoning as those of the Kidcope. The correlations ranging from .08 to .62 between the ACOPE and Kidcope are understandable since the higher correlations between the two scales tended to be on items that were conceptually similar and the low correlations between those more conceptually dissimilar. For example, the highest correlation (r = .62) was obtained on the "seeking diversions" subscale of the ACOPE and the "distraction" item of the Kidcope. Another reason for the lower correlations

between the ACOPE and the Kidcope compared to the Kidcope and the Coping Strategies Inventory may have been the differences in administration instructions. On the ACOPE, adolescents are asked to complete the measure in terms of the coping strategies they typically utilize rather than responding based on a particular problem that has been encountered by the adolescent over a recent period, as is the case with the Kidcope and Coping Strategies Inventory. Thus, if one assumes that a unidimensional trait measure of coping should only be moderately correlated with specific coping strategies used for a particular situation (Lazarus & Folkman, 1984) then the findings of the validity studies examining the relationship between the Kidcope and the Coping Strategies Inventory and ACOPE are consistent with this theory and in the predicted direction.

In regard to the relationship between the frequency with which a coping strategy is employed and its perceived efficacy, the analyses were rather clear cut. For each coping strategy, the correlation obtained between the frequency and efficacy ratings was by far the highest for each particular item. The highest correlations were obtained for social support and problem-solving coping strategies. Since both problem-solving interventions and social support network have been proposed as therapeutic interventions for a variety of specific and nonspecific stressors, the fact that these coping strategies were rated as the most effective when employed the most frequently is logical.

Sex differences in the frequency with which coping strategies are employed have been reported in a number of studies (Billings & Moos, 1981; Folkman & Lazarus, 1980; Ilfield, 1980; Stone & Neale, 1984; Vitaliano et al., 1985). In the present study girls tended to use emotional regulation more frequently as a primary coping strategy. This is consistent with some studies on adults (Billings & Moos, 1980; Stone & Neale, 1984), although not all studies have found this difference (Folkman & Lazarus, 1980). Other research studies have shown adult women to be more apt to utilize social support when under stress (Ilfield, 1980; Stone & Neale, 1984; Vitaliano et al., 1985). Although the results in this study were in the same direction as those with adults, statistical significance was not obtained. Interestingly, males perceived resignation as a more effective way of coping than females, a finding not discussed in the literature with adults. In a related study (Stark, Spirito, Williams, & Guevremont, 1988), sex differences in coping strategy use were examined when the adolescents selected their own personal problem rather than a standard stressor. Under these conditions, the sex differences typically reported in the literature were even more strongly evident on the Kidcope: Females more frequently used social support, emotional regulation, wishful thinking, and problem solving than males.

Although the bulk of the research presented in this paper has to do with the psychometric characteristics of the Kidcope, the clinical utility of the checklist was examined by administering the scale to several samples of

children with chronic illness. In the sample of pediatric patients referred for psychological intervention, distraction was the most frequently employed coping strategy and used significantly more often than in control patients. This finding is congruent with other studies that have found distraction commonly employed by children in dental offices (Brown et al., 1986) and helpful to children undergoing aversive medical treatment (e.g., Redd et al., 1987). Similarly, Kaloupek and Stoupakis (1985) found the use of distraction associated with lower level of anticipatory distress in adult blood donors. Our sample of pediatric patients also used distraction more often than children coping with a school problem and children attending diabetes camp. These findings are consistent with the results of both Folkman and Lazarus (1980) and Billings and Moos (1981) who found that adults used more emotion-focused strategies, such as distraction or wishful thinking, to cope with health-related stressors than with work or family stressors. However, our nonreferred patients were not found to use distraction more than the control group, suggesting that it is important to obtain normative data on coping with stressors among pediatric patients not referred for psychological consultation.

Viney and Westbrook (1984) found that chronically ill adults employed cognitive restructuring (e.g., optimism and trying to see the "silver lining") more frequently than healthy adults. However, in our sample of pediatric patients and diabetic camp patients, such cognitive restructuring strategies were not more frequently used than in the control group. The disparate findings between our study and those with adults may indicate a developmental difference in coping with a chronic illness which needs further investigation. Self-criticism was not found to be common among either sample of ill children and significantly more frequent among controls. Interestingly, the majority of problems reported by the pediatric samples were ones over which the children most likely had some control (e.g., blood sugar levels, soiling, intensity of pain complaints). These findings point to the possible efficacy of education and training for chronically ill children about self-control over certain aspects of their illnesses.

Differences in coping strategies were also noted between pediatric patients referred for psychological evaluation and the nonreferred diabetic children attending camp. For example, the pediatric patients referred for psychological evaluation more frequently used social withdrawal and distraction than the nonreferred children. Such findings may indicate that these attempts at coping through disengagement are maladaptive in certain patients or under certain circumstances. Development of a brief coping checklist should allow for further research, both cross-sectional and longitudinal, in this area examining which strategies are most effective for coping with the various aspects of a chronic illness or different illnesses.

Although there are many studies that examine coping in relation to various stressors, when brief coping checklists are used in these studies, they

are typically devised by the investigator for the study and little effort is made to examine the psychometric characteristics of these scales. Thus, this investigation represents an initial effort to examine the reliability and validity of a brief coping checklist. These efforts are an important step in establishing a measure for coping research with pediatric patients and other children (Compas, 1987). Several cautions should be stated. First, the current studies have been limited to adolescents. Research is currently underway to determine the psychometric properties of a slightly different and more understandable scale for younger children (Spirito, Stamoulis, & Stark, 1988). Second, since all the data reported in this study are self-report, future research in which other observers, preferably parents and/or teachers, also report on coping strategies which they feel are employed by the children in specific situations will be important. Such research would prove difficult since some of the coping strategies are not overt behaviors and thus observers may not be able to effectively rate such strategies. Stone and Neale (1984) have also suggested that research on coping measures may be advanced by placing persons in controlled environments in which they are presented with the problem and then having them demonstrate their coping strategy directly. This type of study would help determine the congruency between what children and adolescents say they do to cope and what they actually do.

Third, as with similar investigations in the area (e.g., Billings & Moos, 1981; Folkman & Lazarus, 1980), subjects in this study were asked to complete the coping checklist using a problem that may have happened several days or weeks prior to the completion of the checklist. Assessing coping on a daily basis is the preferable technique for examining specific coping strategies utilized for specific problems. Such research will be important to conduct in the future in order to obtain a better understanding of the daily variation in the use of coping strategies among children and adolescents. In fact, development of a brief coping checklist such as the Kidcope should facilitate such investigations among healthy children and adolescents, and pediatric patients because its brevity will allow repeated administration. The information obtained regarding those coping strategies reported as most effective across problem situations could be helpful in designing coping skills interventions. Preventive interventions may be especially useful to pediatric patients and may be geared both to predictable events or crises that occur during the chronic illness, for example, scheduled heart surgery for children with congenital heart disease, progressive loss of functioning in children with debilitating diseases such as cystic fibrosis, etc. Of course, such interventions must also address individual variation in coping strategies across different situations and a brief checklist could be helpful in this regard also.

Finally, a brief checklist might be integrated into the daily clinical work of pediatric psychologists. Such a checklist would help in counseling young patients about potential coping strategies they might use for a given situa-

tion and/or to gauge the effectiveness of a particular therapeutic intervention. In addition, a brief checklist can also serve as a coping screen for large numbers of pediatric patients. Employing a brief checklist in this fashion would enable identification of those patients with limited coping strategies at their disposal or adolescents who rate their coping strategies as ineffective. The patients could be taught a broader array of coping strategies that might facilitate adjustment, as suggested by Viney and Westbrook (1984), or forestall the development of adjustment difficulties secondary to stressors encountered in the course of treatment for a variety of pediatric chronic illness. The investigation of protective factors (Rutter, 1979) that mediate the stress experienced during chronic illness is an important area of future research. The competency/vulnerability model (Garmezy, 1981) used to study child psychopathology may provide a model for such investigations although the protective factors are likely to differ across populations. Flexible use of a variety of coping strategies is likely to be an important mediator of the emotional sequelae of a chronic illness and lead to more adaptive functioning. Closely studying protective factors, such as coping, will be needed before conclusions about adaptive functioning in chronic illness can be reached.

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