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Coping Strategies and Psychological Distress: Prospective Analyses of Early and Middle Adolescents[1]

Kathy Glyshaw, Lawrence H. Cohen,[2] and Lynn C. Towbes
University of Delaware

Administered measures of coping, life events, and anxiety and depression to junior high and senior high school samples on two occasions, separated by a 5-month interval. Factor analyses supported the creation of coping subscales for problem solving, cognitive coping, social entertainment, physical exercise, and peer support. A one-item index of parental support was also included in the analyses. The coping subscales showed moderate temporal stability. Mothers' reports of their children's coping provided only marginal support for the validity of the adolescents' self-reports. Prospective regression analyses of the early adolescent data revealed that problem-solving coping was negatively related to depression, and that social entertainment coping was negatively related to anxiety. The prospective effects for the middle adolescents' coping were nonsignificant. The findings are discussed in terms of their implications for the measurement of adolescent coping strategies and research on the relation between these strategies and psychological functioning.

Current coping research emphasizes the distinction between two global coping strategies: behavioral (or problem-focused) coping and cognitive (or

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[2]All correspondence should be addressed to Lawrence H. Cohen, Department of Psychology, University of Delaware, Newark, Delaware 19716.

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emotion-focused) coping. The former involves actions designed to improve stressful situations by changing the environment. It includes problem solving, information seeking, decision making, and interpersonal negotiation. Cognitive coping involves responses designed to improve one's emotional reactions to stressful situations and includes situation redefinition, distress minimization, and selective focus on positive aspects (Lazarus & Folkman, 1984; Moos & Billings, 1982). Some researchers have conceptualized seeking emotional support from others as still another major domain of coping (e.g., S. Cohen & Wills, 1985).

Within the life events paradigm, most of the research on coping with life stress has been conducted with college student and adult populations. The extant child/adolescent literature is largely restricted to coping with very specific forms of stress, such as interpersonal problems and achievement situations (Compas, 1987a). Recently, however, there has been increased attention to the life event stress experienced by children and adolescents (e.g., Compas, 1987b; Johnson, 1986), and the coping efforts they employ in response to this stress (e.g., Wertlieb, Weigel, & Feldstein, 1987).

Most recent empirical studies of children and adolescents (e.g., Asarnow, Carlson, & Guthrie, 1987; Band & Weisz, 1988; Compas, Malcarne, & Fondacaro, 1988; Wetlieb et al., 1987; Wills, 1986) have been interested in identifying specific coping strategies and have been influenced, to varying degrees, by Lazarus and Folkman's (1984) transactional model and the distinction between behavioral and cognitive coping, broadly defined. There is the recognition that coping results from a combination of individual and life event-related characteristics (e.g., Compas, Malcarne, & Fondacaro, 1988). However, consistent with the adult findings of Folkman, Lazarus, Gruen, and DeLongis (1986) and Compas, Forsythe, and Wagner (1988), there are some data to suggest that the coping strategies employed by young adolescents display moderate cross-situational and temporal stability (Compas, Malcarne, & Fondacaro, 1988; Wills, 1986).

Measurement of adolescent coping has been quite diverse. Some studies have classified verbal responses related to specific events actually experienced by respondents (Band & Weisz, 1988; Colletta, Hadler, & Gregg, 1981; Compas, Malcarne, & Fondacaro, 1988; Wertlieb et al., 1987). Other studies have classified responses to hypothetical event stimuli (Asarnow et al., 1987; Brown, O'Keeffe, Sanders, & Baker, 1986). Still other studies have measured the frequency of adolescents' self-reported coping for problems in general (McCubbin, Needle, & Wilson, 1985; Wills, 1986).

Psychometric considerations dictate that a measure of child/adolescent coping be reliable and valid. Only Compas, Malcarne, and Fondacaro (1988) and Wills (1986) tested and obtained adequate temporal stability for their coping instruments. However, to our knowledge, no child/adolescent cop-

ing measure has been validated. For this population, parental or peer confirmation of self-reported coping appears to be an appropriate validational strategy. This is analogous to validating a self-report life events measure by obtaining corroboration of event occurrence by significant others (e.g., Compas, Davis, Forsythe, & Wagner, 1987; L. Cohen, 1988).

There are relatively few child/adolescent studies on the relationship between coping and psychological distress, broadly defined (Compas, 1987a). No coping strategy is inherently good or bad, but depends on the match between the strategy and the coping demands of a situation (Lazarus & Folkman, 1984). However, similar to the adult literature (e.g., Stone, Helder, & Schneider, 1988), the extant child/adolescent literature has reported a relatively consistent negative relationship between behavioral (problem solving) coping, broadly defined, and concurrent psychological distress (Colletta et al., 1981; Compas, Malcarne, & Fondacaro, 1988; Wills, 1988; but see Wertlieb et al., 1987, for discrepant results). In Wills's prospective analyses, problem-solving coping remained a significant predictor of self-efficacy, although the prospective prediction of self-esteem was nonsignificant. Similar to the adult literature (e.g., Stone et al., 1988), the findings for child/adolescent cognitive coping are inconsistent (Compas, Malcarne, & Fondacaro, 1988; Wertlieb et al., 1987; Wills, 1988).

There is also, of course, a relatively large empirical literature on the correlates of adolescents' social support (e.g., Cauce & Srebnik, in press). This literature is extremely inconsistent, due in part to the diversity of social support measurement strategies used. Given the focus of our study, a more important limitation of this literature is the failure to differentiate social support as a *resource* from social support as a *coping* strategy (Stone et al., 1988). For example, the former refers to the actual or perceived availability of helpful others, whereas the latter refers to seeking helpful others for coping assistance. Another important measurement issue is the need to distinguish sources of social support. For adolescents, the most obvious distinction is between parents and peers (e. g., Procidano & Heller, 1983).

There are several methodological problems associated with testing the relationship between coping and psychological adjustment. One major issue concerns inferring a causal relationship from correlational data. Cross-sectional designs are weak with respect to the validity of causal inferences. A longitudinal design assesses the relationship between a Time 2 predictor (coping) and a Time 2 criterion (distress), with statistical control of Time 1 criterion scores. This design is stronger than a cross-sectional design, but, in principle, cannot rule out a reverse causal explanation. A prospective design is the strongest with respect to causal inference, although it still is vulnerable to "third variable" confounds. This model assesses the relationship between a Time 1 predictor and a Time 2 criterion, with statistical control

of Time 1 criterion scores. In the child/adolescent field, all coping studies have been cross-sectional except Wills's (1986, 1988), which analyzed the prospective effects of various coping strategies on substance use, self-esteem, and self-efficacy.

Finally, when studying the correlates of adolescent coping strategies, it is important to consider the possibility of developmental differences. For example, is problem-solving coping more predictive of adjustment for older compared with younger adolescents? One might expect this because of the older group's more established formal operational cognitive abilities, which might result in more *effective* coping efforts of this type. Other relevant questions include the predictive importance of peer versus parental social support coping for older compared with younger adolescents.

In the present study, the aforementioned issues were addressed in the following ways. Our measure of adolescent coping requested information on the frequency of various coping strategies for resolution of problems in general. Our design allowed for computation of the temporal stability of the coping scores, and we included parental report of the adolescents' coping in an effort to demonstrate the subscales' validity. The questionnaire battery also included a measure of recent life events. We conducted cross-sectional, longitudinal, and prospective analyses of the relationship between coping (and life stress) and psychological distress (anxiety and depression). The study sampled a large number of junior high and senior high school students, and separate analyses enabled the testing of differential effects for early versus middle adolescents.

It was anticipated that factor analyses would support the creation of coping subscales, and that subscale scores would be temporally stable and corroborated by parental report. We hypothesized that for both the junior high and senior high school students, problem-solving coping is a significant negative predictor of psychological distress, whereas recent life stress is a significant positive predictor of distress. We had no formal hypotheses regarding the effects of cognitive and social support-related coping.

METHOD

Participants

At Time 1, 530 students attending one of seven mid-Atlantic public schools participated. Of these, 140 were in the 7th grade (68 male, 72 female), 172 in the 8th grade (84 male, 88 female), 107 in the 10th grade (49 male, 58 female), and 111 in the 11th grade (48 male, 63 female). At the junior high level (7th and 8th grades), 221 (71%) of the students were Cau-

casian, 75 (24%) were black, and 16 (5%) were of other racial backgrounds. At the senior high level (10th and 11th grades), 187 (86%) were Caucasian, 29 (13%) were black, and 2 (1%) were of other racial backgrounds.

Of these students, 396 (75%) also participated at Time 2 (108 7th graders, 120 8th graders, 85 10th graders, and 83 11th graders). Of the junior high students who participated at Time 2, 117 were female and 111 were male; 163 (71%) were Caucasian, 57 (25%) were black, and 8 (4%) were of other racial backgrounds. At the senior high level, 98 females and 70 males participated at Time 2. There were 144 (86%) Caucasian students, 23 (13.5%) black students, and 1 (0.5%) Asian student.

Statistics provided by the school district confirmed that for each grade from each school, the sex and race distributions of participants were not significantly different from those of nonparticipants (nonsignificant chi squares). Similarly, for each grade from each school, participants and nonparticipants did not differ on final letter grades received that school year (converted to a grade point average, with A = 4.00, M = 2.31) (nonsignificant t tests).

In addition, several months after Time 2, mothers of 138 randomly selected participating students (58 junior high, 80 senior high) were mailed a questionnaire, and 87 (63%; mothers of 25 junior high and 62 senior high students) responded.

Measures

Demographic Information. A brief questionnaire was used to obtain information concerning the students' age, sex, and educational level of parents (1 = less than high school, 2 = finished high school, 3 = some college, 4 = finished college, 5 = education beyond college). The average of the education scores for both parents was used to approximate SES (M = 3.14, SD = 1.07 for students who participated at both Time 1 and Time 2).

Coping. The 54-item coping measure was previously used by Wills (1986) in his study of junior high school students. Each item is rated on a 5-point scale indicating the frequency with which that coping strategy is used for problems (1 = never, 2 = occasionally, 3 = sometimes, 4 = often, 5 = always). Wills's (1986) orthogonal factor analysis produced 11 factors: problem-solving (behavioral) coping, cognitive coping, adult social support, peer social support, parental support, substance use, physical exercise, aggression, social entertainment, individual relaxation, and prayer.

Life Events. The Adolescent Life Experiences Survey (ALES), a 46-item self-report questionnaire designed specifically for early and middle adolescents, was administered as the measure of recent life events. This questionnaire is a slightly longer version of the 39-item Junior High Life Experiences Survey (JHLES) developed by Swearingen and Cohen (1985b). Students

checked which life events had occurred in the past 6 months and indicated each experienced event's impact (negative, neutral, or positive) at the time of occurrence. (At Time 2, students checked those events that had occurred since the first administration; about 5 months.) The ALES was scored by unit scores (a simple count) of the number of self-rated positive, neutral, and negative life events experienced by each student (Swearingen & Cohen, 1985b). L. Cohen, Burt, and Bjorck (1987) have demonstrated the JHLES's test–retest reliability and validity (parental confirmation of reported events). The JHLES has already been used in two large-scale longitudinal studies of adolescents (L. Cohen et al., 1987; Swearingen & Cohen, 1985a).

Psychological Distress. Two self-report measures were used to assess psychological distress, broadly defined. (The study also included a measure of self-esteem. This variable was highly correlated with depression, *r*s = about .70, and results for the two measures were similar.) Anxiety was measured by Spielberger's (1973) Trait Anxiety Inventory for Children (TAIC). This 20-item scale assesses relatively stable levels of anxiety among children and adolescents. Depression was measured by the Child Depression Inventory (CDI; Kovacs, 1980/1981), a 27-item questionnaire designed to assess depressive symptoms that have occurred in the past 2 weeks. Previous research has found these widely used measures to be sensitive to adolescents' recent life stress (L. Cohen et al., 1987; Swearingen & Cohen, 1985a).

Procedure

Parents of all students in Grades 7, 8, 10, and 11 in one school district were mailed a description of the study and a consent form that was to be returned to the authors. Consenting students completed the questionnaires twice, first in mid-November 1986 (Time 1), and again in mid-April 1987 (Time 2). On both occasions, the questionnaires were administered in the schools to relatively large groups of students (*n*s > 50). Only those students who participated at Time 1 were included at Time 2. At both times, the coping inventory was completed first, with the other questionnaires presented in a randomized order. At Time 2, these students also completed measures of instrumentality and expressiveness, and findings from this component of the research project were reported in a recent article on the stress-moderating role of these personality variables (Towbes, Cohen, & Glyshaw, 1989).

In September 1987, 138 mothers were mailed the coping inventory (and a consent form) and asked to complete each item as it pertained to her son or daughter who participated in the study. (The temporal lag between the Time 2 assessment of the adolescents and the survey of mothers was due to experimenter oversight.) Eighty-seven (63%) returned completed questionnaires. Two-tailed *t* tests showed that the 87 adolescents whose mothers

returned questionnaires did not differ from the 51 whose mothers did not, on the measures of grade point average, parental education, coping, life events, and anxiety and depression (all *ts* < 1.70).

RESULTS

Coping Inventory Factor Analyses

Factor analyses were performed on the 54 coping items to determine subscale composition. Similar to Wills (1986), principal factor analyses with orthogonal (varimax) rotation were used to minimize intercorrelation among the factors. Separate Time 1 and Time 2 factor analyses were conducted for the following student subgroups: (a) all students; (b) male versus female; and (c) junior high versus senior high school students. The factor loadings were examined for consistency across student subgroups and with those factors reported by Wills (1986). From this process, five factors, with eigenvalues greater than 1.00, were found which were identical to Wills' factors of problem-solving (behavioral) coping, cognitive coping, peer social support, physical exercise, and social entertainment. With just a few exceptions, for an item to be assigned to a specific factor (a) its loading on that factor had to exceed its loadings on all other factors, and (b) its loading on that factor had to exceed .30 (although its loadings on other factors could also exceed .30). In total, the five consistent factors represented 30 of the 54 coping items.

The Time 1 and Time 2 factor loadings for these five factors are presented in Table I. These loadings are for all participants, collapsed across grade and sex. The respective loadings for male and female, and for junior high and senior high school students, were similar to those shown in Table I. For all students at Time 1, these five factors accounted for 34% of the variance of the 54 coping items, whereas at Time 2 they accounted for 32%. Time 2 alpha coefficients were (a) problem solving = .81 for junior high school students and .84 for senior high school students, (b) cognitive coping = .75 and .68, (c) peer support = .88 and .91, (d) physical exercise = .68 and .71, and (e) social entertainment = .74 and .66, respectively.

One item involving parental support ("I talk with my mother or father") was treated as a separate coping variable in later analyses. This item is the only one pertaining to parental support and did not load consistently on any factor in the analyses described. It was included as a separate variable because conceptually it is an item of interest. Similar to Wills (1986), each coping subscale was formed by summing the responses to the items that constituted that respective factor (although in the results presented, the mean response per item for each subscale is provided).

Table I. Time 1 and Time 2 Factor Loadings for Coping Items

	Factor loadings	
	Time 1	Time 2
Problem solving		
Think about choices before acting	.76	.77
Think about which information is necessary	.72	.71
Think about risks of different solutions	.71	.73
Think about possible consequences	.67	.68
Get needed information	.67	.68
Think about which is best alternative	.62	.66
Compromise to get something positive	.43	.52
Change behavior that contributes to problem	.19	.27
Change attitude that contributes to problem	.19	.21
Cognitive coping		
Try to put out of mind	.66	.60
Tell self it will be over soon	.62	.62
Wait and hope things will get better	.59	.69
Try to notice only good things in life	.55	.58
Tell self not worth getting upset about	.54	.68
Remind self things could be worse	.50	.52
Go on as if nothing happened	.44	.40
Peer support		
Find someone special to share problem with	.83	.85
Let feelings out with someone	.80	.87
Look for person who may understand problem	.80	.84
Talk with a friend	.73	.78
Talk with brother or sister	.25	.28
Social entertainment		
Go to the movies	.79	.67
Go shopping	.66	.55
Hang out with other kids	.66	.78
Go to a party	.53	.74
Physical exercise		
Work it off by physical exercise	.78	.79
Go to the gym to work out	.72	.76
Play sports	.67	.69
Go jogging	.66	.73
Go bicycle riding	.18	.51

Temporal Stability and Parental Confirmation of Adolescent Coping

The Time 1–Time 2 correlations for the six coping scales were (a) problem-solving coping $r = .60$ for the junior high sample, and .62 for the senior high sample; (b) cognitive coping $rs = .44$ and .55; (c) social entertainment $rs = .63$ and .58; (d) physical exercise $rs = .63$ and .53; (e) peer

Table II. Correlations Between Adolescents' and Mothers' Coping Scores

	Students				
Coping score	All $n = 87$	Male $n = 31$	Female $n = 56$	Jr. High $n = 25$	Sr. High $n = 62$
Problem solving	.24[a]	.20	.23	.30	.16
Cognitive coping	.32[b]	.44[a]	−.03	.46[a]	.27[a]
Peer support	.35[b]	−.03	.46[b]	.14	.45[b]
Physical exercise	.50[b]	.37[a]	.63[b]	.30	.55[b]
Entertainment	.25[a]	.25	.22	.26	.25[a]
Parental support	.19	−.17	.32[a]	−.05	.33[b]

[a] $p < .05$.
[b] $p < .01$.

support *r*s = .54 and .52; and (f) parental support *r*s = .50 and .64, respectively (all *p*s < .001).

Table II shows the correlations between the adolescents' Time 2 scores on the six coping scales and their mothers' reports of these coping strategies. For all students combined, the respective correlations were significant (*r*s > .23, *p*s < .05), except for the one-item parental support scale.

Descriptive Data

The means and standard deviations for the primary Time 1 and Time 2 variables are presented in Table III. At both Time 1 and Time 2, the most frequently reported negative life events were (a) arguing more with parents

Table III. Time 1 and Time 2 Means and Standard Deviations

	Time 1				Time 2			
	Jr. High		Sr. High		Jr. High		Sr. High	
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Negative events	2.38	2.76	2.30	2.63	1.66	2.00	1.52	1.77
Positive events	3.91	2.54	4.23	2.26	3.41	2.19	3.49	2.15
Neutral events	1.52	2.16	1.72	1.83	1.48	1.62	1.51	1.56
Problem solving	3.07	0.67	3.27	0.66	2.94	0.70	3.19	0.64
Cognitive coping	3.02	0.66	2.76	0.68	2.87	0.74	2.75	0.64
Peer support	2.91	0.97	3.00	0.99	2.82	1.05	3.07	0.94
Parental support	2.50	1.32	2.31	1.21	2.33	1.23	2.22	1.15
Physical exercise	2.21	0.82	2.03	0.88	2.19	0.84	2.09	0.81
Entertainment	2.66	1.00	2.46	0.86	2.63	0.95	2.40	0.78
Depression	10.71	7.52	11.31	7.37	9.53	6.99	10.49	7.35
Anxiety	35.81	7.08	36.27	7.51	34.81	7.72	36.13	7.74

(experienced by about 20% at both times); (b) breaking up with a close friend (about 15%); and (c) breaking up with a boyfriend or girlfriend (about 14%).

Time 1 Differences Related to Time 2 Participation

Analyses of variance were conducted on the Time 1 variables (anxiety, depression, the six coping scales, negative, positive, and neutral life events, sex, race, grade, age, education of father, and education of mother) to compare the 396 students who participated at both administrations with the 134 students who participated only at Time 1. The only significant differences were that the latter students scored higher on Time 1 negative events (M = 2.97 vs. 2.15), $F(1, 494) = 8.47$, $p < .01$, and lower on fathers' education (M = 2.86 vs. 3.27), $F(1, 496) = 9.37$, $p < .01$.

Regression Analyses

Separate regression analyses were conducted for the junior high and senior high school samples, and for the prediction of depression and anxiety. The Time 1 cross-sectional analyses tested the relations between the Time 1 coping predictors and Time 1 depression and anxiety. The Time 2 cross-sectional analyses were identical in format, except that they involved the Time 2 measures. The longitudinal analyses were identical to the Time 2 regressions, except that the very first predictor was the appropriate Time 1 distress score. The prospective analyses tested the relations between the Time 1 coping scores and the Time 2 distress criteria, with the appropriate Time 1 distress score serving as the very first predictor.

All regressions also controlled for other variables that were entered prior to the coping scores in this order: (a) parents' education and race, (b) sex, and (c) number of negative life events (Time 1 and Time 2, depending on analysis). This last variable was controlled to ensure that a coping strategy's effect on a distress criterion was not due to both variables' relationship to recently experienced life stress (Stone et al., 1988). For example, the recent occurrence of several negative life events might lead to high scores on both emotion-focused coping and anxiety, and might explain a significant relation between these two latter variables. In each regression analysis, the six coping scores were entered after the life events predictor using a forward entry format, with $p < .05$ the criterion for entry into the equation. We also duplicated each regression analysis wish a simultaneous entry of the coping predictors. The results were virtually identical for these two models. The forward entry findings are reported here, where B refers to the standardized regression coefficient.

In most of the regression analyses, the effects for parents' education and respondent race and sex were nonsignificant, and specific results for these control predictors are not reported.

Effects for Negative Life Events. For both the junior high and senior high samples, life stress (number of negative events) was a significant predictor of both depression and anxiety in the Time 1 and Time 2 cross-sectional analyses. For the prediction of depression, the R^2 change for negative events was: junior high Time 1 = .08; junior high Time 2 = .06; senior high Time 1 = .17; senior high Time 2 = .07. For the prediction of anxiety, the R^2 change for negative events was: junior high Time 1 = .06; junior high Time 2 = .03; senior high Time 1 = .11; senior high Time 2 = .05. In the longitudinal analyses for both samples, life stress was a significant predictor of depression only (junior high $\beta = .13, p < .05, R^2$ change = .02; senior high $\beta = .18, p < .05, R^2$ change = .03). For the junior high sample, life stress was a nonsignificant prospective predictor of depression. It was a significant prospective predictor of junior high students' anxiety but in the negative direction, and therefore this finding should be viewed as a suppression effect (r between Time 1 negative events and Time 2 anxiety = .01, ns).[3] For the senior high sample, life stress was a near-significant prospective predictor of depression ($\beta = .13, p < .06, R^2$ change = .01) and anxiety ($\beta = .11, p < .11, R^2$ change = .01).

Effects for Coping Strategies: Time 1. At Time 1, the only coping scale that emerged as a significant predictor of junior high students' depression was parental support, in the negative direction ($\beta = -.30, p < .001, R^2$ change = .09). First parental support ($\beta = -.13, p < .05, R^2$ change = .02), and then peer support ($\beta = .15, p < .05, R^2$ change = .02) emerged as significant predictors of junior high students' anxiety. The positive relation between Time 1 peer support and anxiety is consistent with the zero-order correlation ($r = .16, p < .01$). For the senior high students, first parental support ($\beta = -.19, p < .01, R^2$ change = .03), and then social entertainment ($\beta = -.13, p < .05, R^2$ change = .02) emerged as significant negative predictors of Time 1 depression. No coping scale was a significant predictor of the older adolescents' anxiety at Time 1.

Time 2 Coping Effects. For the junior high sample, the only coping scale that was a significant predictor of Time 2 depression was parental sup-

[3]Suppression in a regression analysis can be characterized by an inconsistency between the sign (direction) for a predictor's partial regression coefficient and the sign for that predictor's correlation with the criterion. It can also be characterized by a consistency in signs, but where there is a significant effect in the regression analysis in the absence of a significant zero-order correlation between the predictor and the criterion (J. Cohen & Cohen, 1975). Suppression effects can occur when a predictor is tested after statistical control of other predictor variables, and they are not uncommon in multivariate life stress research (e.g., L. Cohen et al., 1987).

port, in the negative direction ($\beta = -.30, p < .001, R^2$ change = .09). First social entertainment ($\beta = -.24, p < .01, R^2$ change = .05), and then problem solving ($\beta = .14, p < .05, R^2$ change = .02) emerged as significant predictors of the junior high students' Time 2 anxiety. The significant positive relation between problem solving and anxiety is inconsistent with the zero-order correlation ($r = -.04$, ns) and is due to a suppression effect. First parental support ($\beta = -.26, p < .001, R^2$ change = .06), and then problem solving ($\beta = -.20, p < .05, R^2$ change = .03) were significant predictors of the senior high students' Time 2 depression, both in the negative direction. No coping scale was a significant predictor of these students' Time 2 anxiety.

Longitudinal Coping Effects. Only parental support was a significant longitudinal predictor of the junior high students' depression ($\beta = -.19, p < .01, R^2$ change = .03), in the negative direction. First social entertainment ($\beta = -.24, p < .001, R^2$ change = .05), and then problem solving ($\beta = .11, p < .05, R^2$ change = .01) were significant longitudinal predictors of these students' anxiety. The significant relation between problem solving and anxiety is due to a suppression effect (Time 2 $r = .07$, ns). Only problem solving was a significant longitudinal predictor of the senior high students' depression, in the negative direction ($\beta = -.18, p < .01, R^2$ change = .03). No coping scale was a significant longitudinal predictor of these students' anxiety.

Prospective Coping Effects. For the junior high sample, first problem solving ($\beta = -.14, p < .05, R^2$ change = .02) and then social entertainment ($\beta = .16, p < .05, R^2$ change = .02) emerged as significant prospective predictors of depression. The significant positive relation between social entertainment and depression is due to a suppression effect (r between Time 1 social entertainment and Time 2 depression = $-.05$, ns). Only social entertainment was a significant prospective predictor of these students' anxiety, in the negative direction ($\beta = -.19, p < .01, R^2$ change = .03). There were no significant coping effects in the prospective analyses of the senior high school students.

DISCUSSION

Factor Analysis of Coping Questionnaire

Factor analyses of the coping questionnaire revealed five factors (problem solving, cognitive coping, peer support, physical exercise, and social entertainment) that were consistently obtained across measurement periods and the sex and grade level of the respondent. These five factors are among those previously obtained by Wills (1986). These analyses provide

some support for the general distinction between behavioral (problem-focused) and cognitive (emotion-focused) coping (Lazarus & Folkman, 1984; Moos & Billings, 1982) that has recently been applied to child and adolescent research (e.g., Wertlieb et al., 1987). Unfortunately, about 40% of the items failed to load consistently on a factor, and a number of potentially interesting coping factors reported by Wills (e.g., aggression, relaxation) were not tested in the present study. It should be pointed out that Wills sampled junior high school students only, with a non-Caucasian representation of about 50%, compared to the approximately 20% representation in the present study.

Examination of the cognitive coping items reveals that this factor comprises primarily denial and cognitive avoidance, emotion-focused strategies that may be relatively narrow in their application. Future research is necessary to better understand emotion-focused coping on the part of adolescents.

Examination of the peer support scale reveals that only two of the five items specifically refer to a social support source (friend, sibling). Like Wills (1986), we have labeled this scale "peer" support, but it is possible that this scale reflects a more pervasive reliance on nonparental social support (including, for example, teachers and coaches) (Cauce & Srebnik, in press).

Our interest in the possibility of differential effects as a function of age (early vs. middle adolescents), sex, and time (Time 1 vs. Time 2) required that we restrict our attention to only those coping subscales that were consistently revealed in the various factor analyses. However, our data set enable preliminary examination of age, sex, and temporal differences in the factorial structure of adolescent coping, and additional analyses and research are planned relevant to these issues. Because of some inconsistency between the results of our factor analyses and those of Wills (1986), it is obviously premature to recommend the widespread use of this coping measure at the present time.

Reliability and Validity of Coping Questionnaire

The stability of the coping scores over a 5-month period was moderate, with Time 1–Time 2 correlations in the .60 neighborhood. The correlations with mothers' reports of their adolescents' coping provided only marginal support for the validity of the adolescents' self-reports. Although all but one of these correlations were significant for all students combined, their magnitude, in general, was low. Clearly, the one-item scale of parental support is of questionable value, at least for males and junior high school students (see Table II). Perhaps with more items, this coping strategy would have received greater corroboration by the mothers. It is also possible that mothers had difficulty providing objective ratings of this coping strategy because of its implications for their helpfulness via-à-vis their children.

It must also be recognized that the mothers' questionnaires were completed several months after the adolescents' at Time 2, and that, theoretically, one would not expect mothers to have *complete* awareness of their adolescents' coping behavior, even if assessed simultaneously. Given these constraints, the suggestive validity data, in conjunction with the moderate temporal stability of the coping scores, support the heuristic value of measuring adolescents' *typical* coping strategies for problem resolution (McCubbin et al., 1985; Wills, 1986, 1988). Future research is required to evaluate the situational variables that influence adolescent coping, and whether situational specificity increases with age (e.g., Compas, Malcarne, & Fondacaro, 1988). Also, the adolescent-mother correlations, presented in Table II, suggest the value of future research on age, sex, and coping differences in parental awareness of adolescent problem resolution.

Relationship Between Coping and Psychological Distress

We predicted that problem-solving coping would be significantly and negatively related to depression and anxiety. The Time 2 and longitudinal prediction of the middle adolescents' depression, and the prospective prediction of the early adolescents' depression, support this hypothesis. These findings are consistent with earlier studies of children and adolescents that have found a negative relationship between problem-solving coping, broadly defined, and psychological distress (e.g., Compas, Malcarne, & Fondacaro, 1988). Because the prospective analysis allows for some causal inference, greater emphasis should be placed on the significant finding for the junior high school sample.

To our knowledge, this study and Wills's (1988) are the only ones to employ a prospective design to test the role of coping strategies in adolescents' psychological functioning. Wills found that problem-solving coping was a significant prospective predictor of early adolescents' self-efficacy, but he did not include a measure of "psychological distress." Our study adds to Wills' by demonstration of the significant prospective prediction of depression. However, it must be emphasized that, in our study, problem-solving coping explained, at most, 3% of the adolescents' distress variance, and therefore these coping effects were small.

Several questions remain regarding the role of problem-solving coping that our results cannot address. It is unclear why problem-solving coping is a significant prospective predictor for early adolescents but not for middle adolescents. Perhaps the two age groups are confronted with different types of life stress. Previous research (e.g., Compas, Malcarne, & Fondacaro, 1988; Stone et al., 1988) has shown that problem-focused coping is especial-

ly helpful for life stress that is perceived as controllable or solvable. It is possible that early adolescents, compared to middle adolescents, *perceive* a greater proportion of their life events to be controllable, and therefore the former group's reliance on problem-solving coping is more predictive of a change in psychological distress. It is also unclear why problem-solving coping predicts depression but not anxiety.

Also of interest is that, for the early adolescents, problem-solving coping was a significant predictor (without benefit of suppression effects) in the prospective analysis, but not in the cross-sectional or longitudinal regression runs. On the other hand, parental support was a consistently significant cross-sectional predictor, but a nonsignificant prospective predictor, for this group of adolescents. It is possible that effects for parental support occur in the short run, that is, fairly immediately, which is why they were detected in all regression runs except the prospective analysis. For early adolescents, problem-solving coping might produce effects that are somewhat delayed, which is why they were revealed only in the prospective analysis. This interpretation is obviously speculative and suggests the need for further research on this issue.

In any case, the results do suggest that a reliance on problem-solving coping is beneficial, and that perhaps instruction in this coping strategy should be included in preventive intervention programs in the schools. This conclusion is consistent with the established literature on problem-solving instruction with children (e.g., Durlak, 1983).

The results also suggest the importance of social entertainment coping. This strategy was significantly and negatively related to the middle adolescents' Time 1 depression, and served as a significant negative predictor of the early adolescents' anxiety in the Time 2, longitudinal, and prospective analyses. It is unclear why dealing with problems by "going to the movies," "going shopping," "hanging out with other kids," and "going to a party" is anxiety-reducing for junior high school students. Perhaps social entertainment of this sort serves as an effective method of distraction for early adolescents. It is also possible that a third variable that reflects social embeddedness or social competence is responsible for this relationship.

As mentioned previously, parental support also emerged as a significant predictor in some of the regression analyses. At Time 1, parental support was a significant negative predictor of the early adolescents' depression and anxiety as well as the middle adolescents' depression. At Time 2, this coping strategy was a significant negative predictor of depression for both adolescent samples. This relationship remained significant in the longitudinal analysis of the early adolescent group. These findings should be interpreted cautiously for two reasons. First, parental support was not a significant predictor in the more conservative prospective analyses. Second, this one-

item scale has questionable validity when based on mothers' corroboration of their adolescents' self-reports.

Effects of Life Stress

The relationship between life stress and the distress criteria was not a major focus of our study, but the life event results warrant some discussion. Prospectively, negative events were a near-significant predictor for the middle adolescents but a nonsignificant predictor for the early adolescents. This pattern is consistent with previous research with junior high and senior high school samples (e.g., L. Cohen et al., 1987; Compas, Wagner, Slavin, & Vannatta, 1986; Swearingen & Cohen, 1985a). Some researchers have suggested that, for early adolescents, chronic stress is more important etiologically than an accumulation of discrete negative life events (L. Cohen et al., 1987).

Methodological Limitations

The present sample was primarily middle-class Caucasian, and it is unknown whether the findings are generalizable to other populations. Although our reliability and validity data support the heuristic value of our measurement approach, this approach is insensitive to event- and appraisal-related variability; complementary studies that analyze adolescent coping from a more transactional perspective are needed. The criterion measures were based on the adolescents' self-reports, and future research should include more objective, behavior-based indices of adjustment. We treated regression suppression effects as statistical artifacts. It is possible that these effects are theoretically meaningful (J. Cohen & Cohen, 1975), although to our knowledge there is no model in the coping literature to adequately explain them.

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