

# Assessment of Major and Daily Stressful Events During Adolescence: The Adolescent Perceived Events Scale

Bruce E. Compas, Glen E. Davis, Carolyn J. Forsythe, and Barry M. Wagner  
University of Vermont

Four studies were conducted to develop a measure of major and daily stressful events during adolescence, the Adolescent Perceived Events Scale (APES). Study 1 identified an item pool of events that were drawn from the open-ended reports of adolescents. In Study 2, multidimensional scaling analysis was used to identify the salient features of stressful events that were cognitively appraised by adolescents. Study 3 examined the test-retest reliability of the APES, and Study 4 examined the concurrent validity of the measure among older adolescents. Subsequent research is summarized that has shown the APES to be significantly related to behavior problems and psychological symptomatology in a wide age range of adolescents, and directions for future research are outlined.

The stressful life events encountered by individuals constitute an important factor in the etiology and course of a variety of psychological and behavioral problems. The relation of both major life events and daily stressors with a range of symptoms and disorders has been well-documented in adults (see Lazarus, 1984; Thoits, 1983). Studies of these relations among children and adolescents, although promising, have been more limited in their number and scope (Compas, in press; Johnson, 1986). Further examination of the nature and effects of stressful events during childhood and adolescence may depend in part on advances in the methods used to measure stressful events in younger age groups.

Six checklists of life events have been developed for use with adolescents or children (Coddington, 1972a, 1972b; Johnson & McCutcheon, 1980; Monaghan, Robinson, & Dodge, 1979; Newcomb, Huba, & Bentler, 1981; Swearingen & Cohen, 1985b; Yeaworth, York, Hussey, Ingle, & Goodwin, 1980). The development and use of these scales in cross-sectional samples and prospective, longitudinal studies have established a relation between negative major life events and emotional and behavioral maladjustment in children and adolescents (see Compas, in press; Johnson, 1986, for reviews). If we are to build on these previous efforts, at least three steps in measurement development require further attention: (a) the adequate sampling of relevant events for children and adolescents, (b) the validation of cognitive appraisals of stressful events, and (c) the investigation of psychometric properties of checklists for younger age groups.

Of the previous measures that have provided a sample of events, five measures consist of lists of events generated by adults (primarily researchers and mental health professionals;

Coddington, 1972a; Monaghan et al., 1979; Newcomb et al., 1981; Swearingen & Cohen, 1985b; Yeaworth et al., 1980), whereas the sixth measure (Johnson & McCutcheon, 1980) includes a few additional items generated by a small sample of adolescents ( $n = 44$ ). The views of adult professionals and researchers may not accurately reflect the experiences of children and adolescents because they are hindered by differences in age, by the limits of existing knowledge in the field, by theoretical biases, and by the differences in perspective between individuals who report on their own behavior and external observers who judge that behavior (cf. Jones & Nisbett, 1971). The composition of these measures has also been limited to major life events to the exclusion of daily stressors. Although considerable controversy has surrounded the measurement of "daily hassles" (B. P. Dohrenwend & ShROUT, 1985; B. S. Dohrenwend, Dohrenwend, Dodson, & ShROUT, 1984; Lazarus, DeLongis, Folkman, & Gruen, 1985), research with adults has indicated that the relation between daily stress and physical and psychological symptoms may well exceed that of major life events (DeLongis, Coyne, Dakof, Folkman, & Lazarus, 1983; Kanner, Coyne, Schaefer, & Lazarus, 1981; Monroe, 1983). Such minor events have rarely been examined in the lives of children and adolescents and may be a necessary component of a comprehensive measure of stressful events for these age groups.

Also controversial is the practice of using respondents to provide cognitive appraisals of stressful events (e.g., Sandler & Guenther, 1985; Zimmerman, 1983). Specifically, concerns have been raised about the possible confound between respondents' subjective appraisals of the stressfulness of events and the level of psychological disorder the measure is used to predict. Furthermore, it has generally been found that complex schemes used to weight life events scores do not alter the correlation between stress and disorder when compared with a simple count of the number of stressful events that have occurred, leading some researchers to conclude that weighting procedures are unnecessary. On the other hand, obtaining subjects' cognitive appraisals may be important for at least two reasons. First, cognitive appraisals of stressful events play a central role in a number of theories of stress (e.g., Lazarus & Folkman, 1984; McGrath, 1970; Moos, 1984) and may be useful for adequately investigat-

---

Portions of this research served as part of the doctoral dissertation of the second author. Studies 1 and 2 were funded by Institutional Grant UVM84-6 from the University of Vermont to the first author. The authors are grateful to David Howell for his assistance with data analyses and to Harold Leitenberg for his comments on an earlier draft of this article.

Correspondence concerning this article should be addressed to Bruce E. Compas, Department of Psychology, University of Vermont, Burlington, Vermont 05405.

ing a particular theoretical framework. Second, it appears that individuals' judgments of events as either positive or negative are important to obtain because negative events are more strongly associated with symptoms of disorder than are positive events. The Johnson and McCutcheon (1980), Newcomb et al. (1981), and Swearingen and Cohen (1985b) measures obtain respondents' judgments of the desirability (positive vs. negative) and degree of impact of each event. However, these dimensions of appraisal were selected on purely theoretical grounds. It remains unclear whether these are the aspects of events that are most salient to adolescents or children in their appraisals of life events.

Researchers have repeatedly pointed out the need for further investigation of the psychometric properties of measures of stressful events during childhood and adolescence (e.g., Johnson, 1982; Newcomb et al., 1981; Swearingen & Cohen, 1985b). The test-retest reliability of only one measure (Johnson & McCutcheon, 1980) has been examined and has been shown to be adequate over a 2-week period (Braud & Johnson, 1982). Establishing test-retest reliability of stressful events measures is particularly important if they are to be used in longitudinal research because it is critical to distinguish meaningful changes from random reporting errors in the rates of occurrence of events, particularly when events are often forgotten over even short periods of time (cf. Monroe, 1982a).

Evaluation of the validity of life events scales is somewhat more difficult. Correlations between stressful events and psychological symptoms have often been used as evidence of the validity of life events measures. However, the use of such correlations to simultaneously establish the validity of a life events measure and to test the hypothesis that stressful events and psychological symptoms are associated constitutes a tautology. An important prerequisite to examining event-symptom correlations is to establish the concurrent validity of the occurrence of stressful events. The corroboration by significant others of the occurrence of events is a useful method for establishing concurrent validity that has not been previously utilized with adolescents or children.

The following series of studies summarizes the development of a measure of stressful events during adolescence. The measure is based on a cognitive-transactional model of stress (Lazarus & Folkman, 1984; McGrath, 1970; Moos, 1984), and the work reflects this perspective. Study 1 describes the generation of a pool of items that includes major life events as well as daily stressors and pleasures in the lives of adolescents. Study 2 presents the empirical identification, through multidimensional scaling analysis, of cognitive appraisal scales for use in the measure. The determination of the measure's test-retest reliability and concurrent validity are presented in Studies 3 and 4, respectively.

### Study 1

The first step in the development of the measure involved the identification of items. This step was carried out as part of a set of studies examining the characteristics of life events during adolescence (Compas, Davis, & Forsythe, 1985). This phase of development sought to reduce the effects of researcher bias in generating items by asking a large sample of adolescents what they believed constituted significant events in their lives. Fur-

thermore, we expanded the focus of prior measures to include positive and negative daily events in addition to major life events.

### Method

#### Subjects

Participants were 658 adolescents (411 female and 247 male) divided into three age groups. The early adolescent sample consisted of 138 female and 101 male participants ( $n = 239$ ) between the ages of 12-14 years. The middle adolescent sample consisted of 152 female and 105 male participants ( $n = 257$ ) between the ages of 15-17 years. The youths in these two groups were volunteers drawn from public junior high schools and high schools in a small urban area and in rural areas of Vermont. Approximately two thirds of the students who were informed of the study volunteered to participate. A third sample of older adolescents was comprised of 121 female and 41 male participants ( $n = 162$ ) between the ages of 18-20 years who participated for extra credit through an introductory psychology class at the University of Vermont (approximately 70% of the enrollees in this course were female students). Students signed up to participate in response to a poster soliciting their participation in the study. Reflective of the population in Vermont, the sample contained less than 1% of ethnic minority group members and was drawn from population centers that were primarily of middle socioeconomic status.

#### Materials and Procedure

After supplying basic demographic data, subjects completed an open-ended questionnaire that asked them to provide lists of events in response to the following sets of instructions:

1. During our day-to-day lives, each of us experiences events which can either cause problems or which bring us pleasure. Daily hassles can be events that irritate, annoy, or upset us or can cause problems, pressures, or difficulties for us. Daily pleasures are events which make us feel happy, joyful, or at peace. Daily hassles and pleasures can happen once, twice, or many times during a month. In the blank spaces below, please describe in your own words any daily hassles or pleasures which have happened to you during the past 6 months.
2. List what you would consider the major events, either positive or negative, which have happened in the past 6 months of your life. This should include those events which have had a large effect on your life or led to changes in how you feel about yourself, your health or well-being, your relationships with other people, or how well you do at school. Each of these events has probably happened only once during the last 6 months but had a large effect on you when it occurred. List what you feel have been the major events of the past 6 months of your life in the blanks below.

Ten blank spaces were provided for listing events after each set of instructions. Subjects were asked to indicate whether each event was positive or negative.

### Results

Subjects generated 2,705 responses to the request for major events and 4,210 responses to the request for daily hassles and pleasures. The experimenters then culled these responses to eliminate redundancy (e.g., death of a parent or sibling were collapsed to form the item, "death of a family member"). Because responses differed somewhat for the three age groups, three life-events checklists were constructed to include 164 events that were identified by the young adolescent sample, 202

events by the middle adolescent sample, and 210 events by the older adolescent sample (copies are available from the authors). Items that were likely to be similar in content to items on checklists of emotional or behavioral problems were avoided (e.g., thoughts about suicide). A core of 157 items was included on all three forms of the measure (e.g., parents getting divorced, something bad happens to a friend, homework or studying), with an additional 7 items included on both the young and middle adolescent forms (e.g., free time in school, having to share a room at home), 38 items included on both the middle and older adolescent forms (e.g., applying to or waiting to hear from colleges, not attending your high school prom), and 15 items included on the older adolescent form only (e.g., entering college, doing laundry). The item pool listed 148 events that were not included on existing measures of adolescent stressful life events. These included some relatively major events (e.g., moving away from parents' home, graduation from junior or senior high school) but consisted predominantly of everyday, daily stressors (e.g., taking care of younger brothers or sisters, feeling pressured by friends, car trouble, homework or studying). Major and daily events are presented together in the measure because Compas et al. (1985) found considerable variability in adolescents' classification of events as major or daily.

## Study 2

The second step in the development of the measure involved the identification of the cognitive appraisal scales on which the events identified in Study 1 would be assessed. As indicated previously, scales of individuals' appraisals of the desirability and impact of events have been included on other measures on theoretical grounds. However, no data are available to indicate whether these appraisals measure the most salient features of the events experienced by adolescents. We used multidimensional scaling analysis (MDS; e.g., Carroll & Arabie, 1980; Schiffman, Reynolds, & Young, 1982) to empirically determine whether adolescents' perceptions of relations among life events could be explained by appraisals of the desirability and impact of events. In addition to perceptions of desirability and impact, we examined the following appraisals that have received attention in previous studies of stressful events: attributions of cause for stressful events (e.g., Hammen, 1985), appraisals of coping resources and abilities (e.g., Lazarus & Folkman, 1984), and event predictability (e.g., Miller, 1981).

## Method

### Subjects

A total of 36 subjects participated in the MDS analysis. This sample was judged to be sufficiently large for the use of MDS procedures to analyze perceptual judgment data (cf. Schiffman, Reynolds, & Young, 1982). Two male and 2 female participants representing each year of age from 12 through 20 were selected to provide a sample balanced for age and gender. The 12–17-year-old subjects attended public junior high schools and senior high schools in Vermont and all had volunteered to participate in the study (approximately half of the students who were contacted agreed to participate). The 18–20-year-old subjects were enrolled in an introductory psychology class at the University of Vermont and received extra course credit for their participation. All subjects were White and of middle-to-upper socioeconomic status.

### Materials

The following 20 life events were selected from the list generated in Study 1 to represent events distributed across different content areas (e.g., school, family, friendship, personal health and appearance): (a) moving away from parent's home; (b) falling in love; (c) sibling getting married; (d) spending time with friends; (e) personal achievement at work; (f) doing well on an assignment or test; (g) getting complimented; (h) listening to music; (i) stopping smoking; (j) sleeping late; (k) doing household chores; (l) minor physical ailments; (m) work hassles; (n) friend having emotional problems; (o) arguments with parents; (p) flunking a class; (q) entering the hospital; (r) problems with boyfriend; (s) failure at sports; and (t) trouble with the law.

The items were then used in two questionnaires. In the first questionnaire, all possible paired combinations of items were presented (190 pairs of events), and respondents were instructed to rate the similarity/dissimilarity of the experience of each pair of events by placing a mark on a 5-inch line. The line was anchored with *exact same* at one end and *most different* at the other. The second questionnaire presented each of the 20 events accompanied by the following 10 cognitive appraisal scales: (a) high impact/low impact; (b) desirable/undesirable; (c) frequent/infrequent; (d) able to cope/unable to cope; (e) others of help/others not of help; (f) caused by you/not caused by you; (g) controllable/uncontrollable; (h) stable cause/unstable cause; (i) cause affects just this event/cause affects many events; and (j) predictable/unpredictable. Ratings for each event on each scale were recorded with a mark on a 5-inch line anchored with the adjective pairs listed above.

### Procedure

Subjects completed the similarity ratings of pairs of events followed by the ratings of each event on the 10 appraisal scales. The questionnaires were administered to small groups of 3–4 subjects so the experimenter could be sure that subjects understood the task.

### Results

Separate MDS solutions were generated for early adolescents (ages 12–14 years), middle adolescents (ages 15–17 years), and late adolescents (ages 18–20 years). For each sample, two analyses were conducted. First, the similarity ratings were used to identify the dimensions subjects used in comparing the events. For each age group, MDS analyses resulting in from one-dimensional to four-dimensional solutions were examined for interpretability and replicability. The most complex solution (i.e., containing the largest number of dimensions) in which highly intercorrelated dimensions were obtained between separate halves of the sample was selected. Second, ratings of the items on the appraisal scales were used to empirically determine the relation between these appraisals and the dimensions derived in the first step. Multiple regression analyses were performed using coordinates of items on each dimension identified in the first step as dependent variables and subjects' averaged ratings of each event on the 10 appraisal scales as the independent variables.

For the early adolescent sample, a one-dimensional solution for the similarity ratings was the only replicable and interpretable solution. This solution accounted for 43% of the variance in subjects' similarity/dissimilarity ratings of the events. In the second step of the MDS procedure, this dimension was found to correlate significantly with the appraisal scale of desirability ( $R = .96, p < .001$ ). No other appraisals were significantly related to this dimension.

A three-dimensional solution was replicable for the middle adolescent sample, accounting for 47% of the variance in similarity judgments. One cognitive appraisal was significantly correlated with each of these dimensions: desirability with the first dimension ( $R = .98, p < .001$ ), impact with the second dimension ( $R = .68, p < .001$ ), and generality of cause with the third dimension ( $R = .55, p < .02$ ).

Finally, a three-dimensional solution was replicable for the older adolescent sample, with 58% of the variance in the similarity ratings accounted for. Desirability appraisals were significantly related to the first dimension ( $R = .99, p < .001$ ), impact with the second dimension ( $R = .66, p < .01$ ), and generality of cause with the third dimension ( $R = .48, p < .04$ ). No other appraisals were significantly correlated with either of these dimensions.

In summary, the data indicated that early, middle, and late adolescents' judgments of the similarity/dissimilarity of events could be identified empirically. All three age groups distinguished the events on the basis of their desirability. Furthermore, both the middle and older adolescent samples distinguished the events by the amount of impact the events had on their lives and by the generality of the cause of events. However, perceived generality of cause was highly correlated with impact ratings for the total sample ( $R = .92, p < .01$ ), indicating it may not be a highly distinctive feature of adolescents' perceptions of events.

These results indicated that the inclusion of scales measuring impact and desirability with other measures of adolescent life events is appropriate for middle and older adolescents but may not accurately represent the appraisals of younger adolescents. Thus, the version of the measure for the younger adolescents includes only a 9-point desirability scale ( $-4 = \textit{extremely undesirable}$ ;  $0 = \textit{neutral}$ ;  $4 = \textit{extremely desirable}$ ), whereas the middle and older adolescent versions include this scale plus a 9-point scale assessing impact ( $1 = \textit{no impact at all}$ ;  $9 = \textit{extremely high impact}$ ). Perceptions of the generality of cause of events were not included in the measure because, as noted previously, they do not appear to be a highly distinctive feature of adolescents' perceptions of events. Finally, because Compas et al. (1985) found that adolescents varied in their classification of events as major or daily, a 9-point scale of frequency of occurrence ( $1 = \textit{happened once in your life}$ ;  $9 = \textit{happened once a day}$ ) was included in the middle and older adolescent versions of the measure to allow for differentiation of major and daily events. Events perceived to have high impact but to occur infrequently can be classified as major events, whereas events perceived to occur frequently with variable impact can be classified as daily stressors.

### Study 3

Having identified the items and the cognitive appraisal scales in Studies 1 and 2, we attempted to determine the reliability of the measure in Study 3. As noted previously, it is essential to determine if responses are reliable recollections of past events or are random errors influenced by subjects who forget events that have occurred or who fabricate events that did not occur during a designated time period. This distinction can best be determined by assessing the reliability of reports of events that occurred during a particular time period that have been ob-

tained at two different points in time (Monroe, 1982b; Zimmerman, 1983). Study 3 focused on the reliability of recall of events during a 3-month period. Because of the tendency for individuals to forget substantial numbers of prior life events over time (Monroe, 1982a, 1982b), it was thought that recall of events over longer periods would be less reliable.

### Method

#### Subjects

Participants were 95 adolescents ranging in age from 12 to 20 years. The young adolescent sample ( $n = 22$ ) ranged in age from 12 to 14 years ( $M = 13.4$ ) and was enrolled in a public junior high school. The middle adolescent sample ( $n = 22$ ) ranged in age from 15 to 17 years ( $M = 16.2$ ) and was enrolled in a public senior high school. These subjects comprised approximately 25% of students who were asked to participate in the study. Fifty-one older adolescents (31 female, 20 male) ranging in age from 18 to 20 years ( $M = 18.3$ ) comprised the older adolescent sample. All older adolescents were freshmen enrolled in an introductory psychology class at the University of Vermont who elected to participate in the study for extra course credit.

#### Materials

Subjects completed the age-appropriate version of the Adolescent Perceived Events Scale (APES). The young, middle, and older adolescent versions of the scale consisted of checklists of 159, 200, and 210 major and daily life events, respectively, that had been identified in Study 1 (5 items on the early adolescent form and 2 items on the middle adolescent form that related to sexual experiences were omitted at the request of the local school board). Subjects first indicated whether or not each event (a) had occurred during the past 3 months or (b) had never occurred or had occurred more than 3 months ago. Subjects then rated those events that had occurred during the past 3 months on the cognitive appraisal scales that were identified in Study 2 as appropriate for their age group: Young adolescents rated the desirability of events, whereas middle and older adolescents rated the desirability, impact, and frequency of occurrence of events.

#### Procedure

Subjects completed the APES in small groups (10–15 participants) at two points in time, 2 weeks apart. At the first administration, subjects were instructed to indicate and rate those events that had occurred in the prior 3 months of their lives (dates were given to specify the time period). At the second administration, subjects were instructed to complete the measure again for the same time period they had rated at the first administration (dates were again given).

### Results

In previous research, the test-retest reliability of life-events measures has been determined through correlations of the numbers of events that were reported at two points in time and through the consistency of reports on the occurrence or nonoccurrence of individual items at the two assessment points (Zimmerman, 1983). Both approaches were used with the present data. The Pearson correlations of the total number of events reported, the total weighted negative events (the sum of desirability ratings for events rated as negative by the young adolescent sample and the sum of the Desirability  $\times$  Impact scores for events rated as negative by the middle and older samples), and the total weighted positive events (the sum of desirability

Table 1  
*Test-Retest Reliability of the Occurrence of  
 Stressful Events Over Two Weeks*

Age group	No. events	Weighted negative events	Weighted positive events
Young (12–14 years)	.85	.86	.78
Middle (15–17 years)	.84	.89	.81
Older (18–20 years)	.77	.74	.84

Note. All Pearson correlations were significant ( $p < .001$ ).

ratings for events rated as positive by the young adolescent sample and the sum of the Desirability  $\times$  Impact scores for events rated as positive by the middle and older samples) for the young, middle, and older adolescent samples are presented in Table 1. These correlations were all significant ( $p < .001$ ) and ranged from .77 to .85 for the number of events reported, from .74 to .89 for weighted negative events, and from .78 to .84 for weighted positive events.

A second set of analyses examining reports of occurrence, desirability, impact, and frequency for each event at the two time points are summarized in Table 2. The percent of agreement for reports of the occurrence of events was determined by summing the number of events reported as occurring at both times plus the number of events reported as not occurring at both times divided by the total number of events. This formula was selected because events reported as not occurring (e.g., a youngster who does not report arguments between his or her parents) are as meaningful for consistency as events reported as occurring. The rates of agreement were consistently high for the three age groups, ranging from 83% for the young adolescents to 89% for the older adolescents.<sup>1</sup> In a measure of this length it is important to assess whether subjects become fatigued during the administration, which would result in reduced reliability for later versus earlier items. Each version of the measure was divided into thirds, and the reliability of each section was analyzed separately for each age group. The percent of agreement was 81% or more for each segment, indicating that there was no significant decrease in reliability as a function of order of items.

The reliability of subjects' appraisals of the desirability, impact, and frequency of events reported at both Time 1 and Time 2 was also determined. Each appraisal scale was dichotomized (positive vs. negative; high impact vs. low impact; frequent vs. infrequent) by splitting each scale at the midpoint, and percentages of agreement in appraisals at the two times were calculated (e.g., the sum of events reported as negative at both times plus events reported as positive at both times divided by the total number of events reported as positive or negative at both times). These findings are summarized in Table 2. Percentages of agreement were consistently high, with five of the seven percentages equal to or greater than 90%. Thus, these findings were similar to the Pearson correlations for total scores in indicating that the test-retest reliability of reports of event occurrence and ratings of desirability were adequate to high for all three age groups.

#### Study 4

Determination of the validity of a life-events measure presents the most difficult psychometric task in its development. We

have focused on the validity of reports of event occurrence and of subjects' appraisals of event desirability, impact, and frequency of occurrence. To address these issues, subjects' self-reports of recent life events were compared with reports of subjects' life events obtained from individuals in close relationships with the subjects. Whether agreement between subjects' and significant others' reports of the subjects' life events represents interrater reliability (Zimmerman, 1983) or concurrent validity is, ultimately, a semantic issue. The important point is that the rates of agreement between subjects' and others' reports can be used to corroborate the occurrence and appraisal of events. As an initial step in examining the concurrent validity of the measure, college roommates were chosen to serve as confidants for older adolescents because they are generally aware of each other's events, both through observations of common daily interactions as a result of sharing a living space and through mutual disclosure in conversations about personal topics.

#### Method

##### Subjects

Participants were 34 older adolescents (28 female, 6 male) ranging in age from 18 to 20 years ( $M = 18.6$ ). All participants were freshmen enrolled in an introductory psychology class at the University of Vermont who participated in the study for extra course credit. Subjects were recruited in pairs with the stipulation that members of each pair be roommates in a dormitory. The study was conducted during the second college semester to allow sufficient time for subjects to have developed close relationships.

##### Materials

Subjects completed the older adolescent version of the APES described in Study 3. In addition, they completed a questionnaire designed to assess the quality and degree of closeness in their relationship with their roommate. Questions were rated on 8-point Likert scales from *never* to *almost always* and assessed length of the relationship in years and months, frequency of shared activities (e.g., eating meals, studying, and socializing together), and frequency of discussions of intimate topics.

##### Procedure

Subjects and their roommates reported for participation in the study and completed all questionnaires simultaneously in separate rooms (thus controlling for contamination due to subject and roommate pairs discussing their responses). Subjects first completed the questionnaire assessing their relationship with their roommate. Subjects then completed two copies of the APES: first, with reference to events in their own life in the prior 3 months and, second, with reference to events in their roommate's life in the prior 3 months (half of the sample completed the self-report first and half completed the roommate report first). Thus, each pair of subjects contributed two self/other comparisons, resulting in a total of 68 comparisons.

<sup>1</sup> Lower rates of agreement were obtained when a more restrictive formula was used (i.e., events reported as occurring at both time points divided by the sum of events reported at both time points plus events reported at one time point but not the other). These figures were 72%, 63%, and 78% for the younger, middle, and older adolescent samples, respectively.

Table 2  
*Test-Retest Reliability of the Occurrence and Cognitive Appraisals of Stressful Events: Percent Agreement Over Two Weeks*

Age group	Occurrence	Desirability	Impact	Frequency
Young (12-14 years)	83	81	—	—
Middle (15-17 years)	84	92	77	90
Older (18-20 years)	89	93	90	91

Note. Impact and frequency ratings were not obtained from the young adolescent sample.

### Results

Analysis of the questionnaire assessing the nature and quality of roommates' relationships indicated that subjects were involved in close relationships. Thus, these subjects provided a reasonable sample for corroborating subject's accounts of the occurrence of life events. For example, subjects reported talking about intimate topics quite often ( $M = 6.1$  on an 8-point scale) and liking the other a great deal ( $M = 7.2$  on an 8-point scale).

Reports of event occurrence and nonoccurrence by subjects and roommates were examined for rates of agreement. The percent of agreement for event reports by the two sources was 82% (the sum of events reported by both respondents as occurring plus events reported by both respondents as not occurring, divided by the total number of events). As in Study 3, this formula was selected because agreement on nonoccurrence of events is as meaningful as agreement on occurrence.<sup>2</sup> Percentages of agreement for individual items ranged from 100% (26 items) to 41% (1 item), with 42% of the items achieving a rate of 90% agreement or more. To examine for the possible effects of fatigue in completing the measure, percentages of agreement for groups of items were determined: Items 1-50 showed 84% agreement; Items 51-110 showed 85% agreement; Items 111-170 showed 77% agreement; and Items 171-210 showed 82% agreement. There was no significant decrease in agreement as a function of order.

The validity of subjects' appraisals of the desirability, impact, and frequency of events that had occurred in the prior 3 months was also examined by comparing subjects' appraisals with estimates of subjects' appraisals made by roommates. Ratings on each of the three scales were dichotomized in the same manner as in Study 3. The percentage of agreement for ratings of desirability was 87%; for ratings of impact, 90%; and for frequency ratings, 91%.

### General Discussion

The four studies reported here represent steps in the development of a new measure of stressful events that occur during adolescence and builds on previous efforts to develop a life-events scale for this age group. The findings reflect progress in three areas. First, a broad sample of major and daily events was generated by adolescents for inclusion in the measure. Second, cognitive appraisals of events were assessed on the APES using scales that were empirically derived using multidimensional scaling analysis. Although the present findings generally support the selection of appraisal scales of event desirability and

impact that have been used in prior measures, these results indicate that appraisal scales should differ somewhat for early adolescence as opposed to middle and late adolescence. Third, psychometric data were obtained on test-retest reliability for all age groups and on concurrent validity of event occurrence through corroborated reports from significant others for older adolescents.

Most new items included in the APES reflect chronic daily stressors in the lives of adolescents. The inclusion of such items in a measure of adolescent stress serves to make it more representative of adolescents' life experiences. However, this raises the concern that the association between stressful events and maladjustment is spurious due to the possible confounding of hassles and symptoms (see Brown, 1974; B. P. Dohrenwend & ShROUT, 1985; B. S. Dohrenwend et al., 1984; Lazarus et al., 1985, for a discussion of this problem with adult measures). Two steps were taken to keep this from occurring with the APES. First, in a study by Wagner and Compas (1986) involving high school seniors, 20 items that overlapped in content with the measure of symptoms (in this case, the Symptom Checklist-90-R; Derogatis, 1977) were identified based on the criteria outlined by B. S. Dohrenwend et al. (1984) and were omitted from the analysis of the correlations between the two measures. The correlations did not differ when the potentially confounded items were deleted ( $r = .502$ ) as opposed to included ( $r = .535$ ) in the analyses. Second, B. P. Dohrenwend and ShROUT (1985) criticized the Hassles Questionnaire (Kanner et al., 1981) for the use of a 3-point response format ranging only from *somewhat severe* to *extremely severe*. They argued that this does not allow respondents to indicate a hassle of milder impact than somewhat severe. To address this problem, the Impact scale on the APES was designed to range from 1 to 9, with 1 indicating *no impact*. Thus, hassles that were not perceived as severe were included in analyses of the relation between the APES and psychological symptoms.

The use of empirically identified scales for the assessment of cognitive appraisals of stressful events reflects a further attempt to enhance the representativeness of the measure. It appears that, of the appraisals examined in Study 2, perceptions of desirability and impact are the dominant cognitive appraisals of stressful events by middle and older adolescents, whereas younger adolescents' appraisals involve only perceptions of event desirability. As noted previously, cognitive appraisals play a central role in the theory on which the measure is based and have been included to facilitate the investigation of a cognitive model of stress during adolescence.

The findings reported in Studies 3 and 4 compare quite favorably with the psychometric characteristics of both adolescent and adult life-event measures. Test-retest reliability coefficients (Pearson correlations) for the Johnson and McCutcheon (1980) measure have ranged from .68 to .72 and for adult measures have ranged from .38 to .94, with the majority falling below .70 (see Zimmerman, 1983). The reliability of the APES exceeded that of most adult measures and was sufficiently stable to infer

<sup>2</sup> An agreement rate of 64% was obtained using a more restrictive formula (i.e., events reported by respondents and roommates as having occurred divided by the sum of events reported by respondents and roommates plus events reported only by the respondent or the roommate).

that recall of events during the prior 3 months was not adversely affected by subjects' forgetting events or fabricating events that had not occurred. The corroboration of events by roommates also appeared strong when compared with adult studies that have reported agreement rates ranging from 56% to 93% (see Zimmerman, 1983). Given the greater length of the APES compared with adult measures, the present findings are encouraging. Furthermore, this represents the first report of corroboration of cognitive appraisals. The rates of agreement for older adolescents' perceptions of event desirability, impact, and frequency were adequate given the level of difficulty of this task. The relatively high rates of test-retest reliability and concurrent validity, compared with prior findings on adult measures, are most likely a result of requiring subjects to recall events over a shorter period of time (3 months as opposed to the more typical 6-12 months) and of the inclusion of a pool of items that were more relevant to the population being studied (cf. Sandler & Guenther, 1985).

The APES has been used in several studies of the relation of adolescent stress to behavior problems and psychological symptomatology, and the findings have been quite encouraging. As part of a larger study concerned with stress and symptomatology in families (Compas & Phares, 1986), young adolescents' (aged 11-14 years) negative event scores (weighted by subjects' desirability ratings) on the APES were found to be significantly related with total behavior problems ( $r = .36$ ) on the Youth Self-Report Form of the Child Behavior Checklist (Achenbach & Edelbrock, 1986). Broken down by gender, this finding was significant for girls ( $r = .49$ ) but not for boys. Previous data indicating that young female adolescents report more negative daily events than their male peers (Compas et al., 1985) have suggested that this gender difference may be a result of the effects of daily stressors.

The APES has also been used in an investigation of the role of daily stressors as mediators of the relation between major life events and psychological symptoms in a three-wave prospective study of older adolescents during the transition from high school to college (Wagner, Compas, & Howell, in press). The idiographic method for distinguishing major and daily events (described previously) was utilized. Results of structural equation causal modeling analyses supported the hypotheses at all three assessment times (i.e., there were significant paths from major events to daily events and from daily events to psychological symptoms, but the paths from major events to symptoms were not significant).

The magnitude of the association between weighted negative events assessed with the APES and psychological distress was higher than that typically reported for other measures of adolescent stress and self-reports of symptomatology. For example, prior studies have reported concurrent correlations of negative events and depressive symptoms ranging from .22 to .38 (Barrera, 1981; Compas, Slavin, Wagner, & Vannatta, 1986; Johnson & McCutcheon, 1980; Newcomb et al., 1981; Swearingen & Cohen, 1985a, 1985b). The cross-sectional correlations of the APES with the depression subscale of the HSCL (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974) were found to be considerably higher, ranging from .49 to .60 (Wagner, Compas, & Howell, in press). The increased magnitude of the event-symptom correlations may be attributable, to a great extent, to

the use of a more representative set of items that included daily stressors.

A number of additional steps in the development and use of the measure are needed. First, the present samples were relatively homogeneous with regard to several demographic factors, including ethnic background and living environment. Surveys of adolescents in urban areas regarding recent stressful events are needed to test the generalizability of the items that were included in the APES. Second, data are needed on the concurrent validity of the occurrence of recent stressful events in young and middle adolescents through corroboration by reports of parents and friends. Third, major and daily events can be distinguished in three ways on the middle and older adolescent forms of the APES, that is, idiographically based on individual subject's ratings of the frequency and impact of events, consensually based on the mean frequency and impact ratings for the sample, and based on the judgments of independent raters of events as major or daily stressors. Comparisons of these three rating systems, including the correlations of major and daily events with psychological symptoms, would be useful in further understanding the distinction between these two types of stress. Fourth, the reliability, concurrent validity, and frequency of endorsement of individual items need to be assessed to determine if there are items that are weak psychometrically or that occur in such a large or small portion of the population that they have little power in predicting measures of adjustment or symptomatology. Finally, future research concerning adolescent stress needs to address complex interactions between subtypes of events and personal characteristics rather than analyze only aggregate correlations between total stress and symptoms. That is, some types of events may be more stressful for certain individuals than others. For example, a recent study by Hammen, Marks, Mayol, and deMayo (1985) found that depressive symptoms were best predicted by an interaction between self-schemas (dependent vs. self-critical) and types of events (interpersonal vs. achievement). Similarly, some types of coping may be more effective than others in helping subjects to adapt and may mediate the effects of different stressors (Compas, 1987). The identification of subtypes of events on the APES will facilitate research examining Person  $\times$  Event interactions among adolescents, which should clarify the nature of stress processes in this age group.

## References

- Achenbach, T. M., & Edelbrock, C. (1986). *Youth Self-Report Profile*. Burlington: University of Vermont, Department of Psychiatry.
- Barrera, M. (1981). Social support in the adjustment of pregnant adolescents: Assessment issues. In B. H. Gottlieb (Ed.), *Social networks and social support* (pp. 69-96). Beverly Hills, CA: Sage.
- Braud, A. H., & Johnson, J. H. (1982). Note on reliability of the Life Events Checklist. *Psychological Reports*, 50, 1273.
- Brown, G. W. (1974). Meaning, measurement, and stress of life events. In B. S. Dohrenwend & B. P. Dohrenwend (Eds.), *Stressful life events: Their nature and effects* (pp. 217-243). New York: Wiley.
- Carroll, J. D., & Arbie, P. (1980). Multidimensional scaling. *Annual Review of Psychology*, 31, 607-649.
- Coddington, R. D. (1972a). The significance of life events as etiological factors in the diseases of children: I. A survey of professionals. *Journal of Psychosomatic Research*, 16, 7-18.
- Coddington, R. D. (1972b). The significance of life events as etiological

- factors in the diseases of children: II. A study of a normal population. *Journal of Psychosomatic Research*, 16, 205-213.
- Compas, B. E. (1987). Coping with stress during childhood and adolescence. *Psychological Bulletin*, 101, 393-403.
- Compas, B. E. (in press). Stress and life events during childhood and adolescence. *Clinical Psychology Review*.
- Compas, B. E., Davis, G. E., & Forsythe, C. J. (1985). Characteristics of life events during adolescence. *American Journal of Community Psychology*, 13, 677-691.
- Compas, B. E., & Phares, V. (1986, August). *Child and parental stress and symptomatology: An integrative analysis*. Paper presented at the annual convention of the American Psychological Association, Washington, DC.
- Compas, B. E., Slavin, L. A., Wagner, B. M., & Vannatta, K. (1986). Relationship of life events and social support with psychological dysfunction among adolescents. *Journal of Youth and Adolescence*, 15, 203-219.
- DeLongis, A., Coyne, J. C., Dakof, G., Folkman, S., & Lazarus, R. S. (1983). Relationship of daily hassles, uplifts, and major life events to health status. *Health Psychology*, 1, 119-136.
- Derogatis, L. R. (1977). *SCL-90-R administration, scoring, and procedures manual* (Vol. 1). Baltimore, MD: Clinical Psychometric Research.
- Derogatis, L. R., Lipman, R. S., Rickels, K., Uhlenhuth, E. H., & Covi, L. (1974). The Hopkins Symptom Checklist. *Pharmacopsychiatry*, 7, 79-110.
- Dohrenwend, B. P., & ShROUT, P. E. (1985). "Hassles" in the conceptualization and measurement of life stress variables. *American Psychologist*, 40, 780-785.
- Dohrenwend, B. S., Dohrenwend, B. P., Dodson, M., & ShROUT, P. E. (1984). Symptoms, hassles, social support, and life events: The problem of confounded measures. *Journal of Abnormal Psychology*, 93, 222-230.
- Hammen, C. L. (1985). Predicting depression: A cognitive-behavioral perspective. In P. C. Kendall (Ed.), *Advances in cognitive-behavioral research and therapy* (Vol. 4, pp. 29-71). New York: Academic Press.
- Hammen, C., Marks, T., Mayol, A., & deMayo, R. (1985). Depressive self-schemas, life stress, and vulnerability to depression. *Journal of Abnormal Psychology*, 94, 308-319.
- Johnson, J. H. (1982). Life events as stressors in childhood and adolescence. In B. B. Lahey & A. E. Kazdin (Eds.), *Advances in clinical child psychology* (Vol. 5, pp. 219-253). New York: Plenum Press.
- Johnson, J. H. (1986). *Life events as stressors in childhood and adolescence*. Beverly Hills, CA: Sage.
- Johnson, J. H., & McCutcheon, S. (1980). Assessing life events in older children and adolescents: Preliminary findings with the life events checklist. In I. G. Sarason & C. D. Spielberger (Eds.), *Stress and anxiety* (Vol. 7, pp. 111-125). Washington, DC: Hemisphere.
- Jones, E. E., & Nisbett, R. E. (1971). *The actor and the observer: Divergent perceptions of the causes of behavior*. Morristown, NJ: General Learning Press.
- Kanner, A. D., Coyne, J. C., Schaefer, C., & Lazarus, R. S. (1981). Comparison of two modes of stress measurement: Daily hassles and uplifts versus major life events. *Journal of Behavioral Medicine*, 4, 1-19.
- Lazarus, R. S. (1984). Puzzles in the study of daily hassles. *Journal of Behavioral Medicine*, 7, 375-389.
- Lazarus, R. S., DeLongis, A., Folkman, S., & Gruen, R. (1985). Stress and adaptational outcomes: The problem of confounded measures. *American Psychologist*, 40, 770-779.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- McGrath, J. E. (1970). A conceptual formulation for research on stress. In J. E. McGrath (Ed.), *Social and psychological factors in stress* (pp. 10-21). New York: Holt, Rinehart, & Winston.
- Miller, S. M. (1981). Predictability and human stress: Toward clarification of evidence and theory. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 14, pp. 203-256). New York: Academic Press.
- Monaghan, J. H., Robinson, J. O., & Dodge, J. A. (1979). The Children's Life Events Inventory. *Journal of Psychosomatic Research*, 23, 63-68.
- Monroe, S. M. (1982a). Assessment of life events: Retrospective vs. concurrent strategies. *Archives of General Psychiatry*, 39, 606-610.
- Monroe, S. M. (1982b). Life events assessment: Current practices, emerging trends. *Clinical Psychology Review*, 2, 435-543.
- Monroe, S. M. (1983). Major and minor life events as predictors of psychological distress: Further issues and findings. *Journal of Behavioral Medicine*, 6, 189-205.
- Moos, R. H. (1984). Context and coping: Toward a unifying conceptual framework. *American Journal of Community Psychology*, 12, 5-25.
- Newcomb, M. D., Huba, G. J., & Bentler, P. M. (1981). A multidimensional assessment of stressful life events among adolescents: Derivation and correlates. *Journal of Health and Social Behavior*, 22, 400-415.
- Sandler, I. N., & Guenther, R. T. (1985). Assessment of life stress events. In P. Karoly (Ed.), *Measurement strategies in health psychology* (pp. 555-600). New York: Wiley.
- Schiffman, S. S., Reynolds, M. L., & Young, F. W. (1982). *Handbook of multidimensional scaling*. New York: Academic Press.
- Swearingen, E. M., & Cohen, L. H. (1985a). Life events and psychological distress: A prospective study of young adolescents. *Developmental Psychology*, 21, 1045-1054.
- Swearingen, E. M., & Cohen, L. H. (1985b). Measurement of adolescents' life events: The Junior High School Life Experiences Survey. *American Journal of Community Psychology*, 13, 69-85.
- Thoits, P. A. (1983). Dimensions of life events that influence psychological distress: An evaluation and synthesis of the literature. In H. B. Kaplan (Ed.), *Psychosocial stress: Trends in theory and research* (pp. 33-103). New York: Academic Press.
- Wagner, B. M., & Compas, B. E. (1986). [Sex differences in psychological stress and symptoms in adolescence]. Unpublished raw data.
- Wagner, B. M., Compas, B. E., & Howell, D. C. (in press). Daily and major life events: A test of an integrative model of psychosocial stress. *American Journal of Community Psychology*.
- Yeaworth, R. C., York, J., Hussey, M. A., Ingle, M. R., & Goodwin, T. (1980). The development of an adolescent life change event scale. *Adolescence*, 15, 91-97.
- Zimmerman, M. (1983). Methodological issues in the assessment of life events: A review of issues and research. *Clinical Psychology Review*, 3, 339-370.

Received August 5, 1986

Revision received January 6, 1987

Accepted January 6, 1987 ■