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## The Adolescent Coping Process Interview: Measuring Temporal and Affective Components of Adolescent Responses to Peer Stress

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### Abstract

The way in which adolescents cope with stressors in their lives has been established as an important correlate of adjustment. While most theoretical models of coping entail unfolding transactions between coping strategies and emotional arousal, the majority of coping measures tap only trait-level coping styles, ignoring both temporal and affective components of the coping process. The current study fills this gap by establishing the psychometric properties of a newly developed measure, the Adolescent Coping Process Interview (ACPI), that is more in line with transactional and developmental models of coping. Results indicate that the ACPI displays good psychometric properties, captures significant intra-individual variability in coping over the process, and points to emotional arousal as informing several coping-adjustment relationships. Moreover, the ACPI and similar approaches may help promote the development of more adaptive patterns of coping in adolescents by helping to identify specific points within the coping process at which to intervene.

### Keywords

Coping; Stress; Adolescence; Measurement

Understanding the emergence of coping in adolescence is critical to advancing our understanding of processes of adaptation to stress (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001). The stress-coping process in adolescence has long been conceptualized as a transactional progression in which subjective appraisals of a specific event, co-occurring emotional arousal, and subsequent coping *strategies* unfold over time (Sommerfield & McCrae, 2000). Yet the vast majority of coping measures mask the dynamic nature of the coping process by tapping static coping *styles*, an adolescent's general tendency to use a certain type of coping over time or across the entire coping process. This mismatch between theoretical models and measures of adolescent coping may in part account for coping's limited prediction of adjustment outcomes (Tennen, Affleck, Armeli, & Carney, 2000). Methods that capture the dynamic process of coping as it unfolds are needed to advance coping research and better

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explain the relation between coping and adjustment in adolescents (Skinner, Edge, Altman, & Sherwood, 2003; Tennen et al., 2000). The current study fills this gap by introducing the Adolescent Coping Process Interview (ACPI), a new measure designed to capture the sequencing of coping strategies and co-occurring emotional arousal that unfold in response to a specific stressor.

### Conceptualizations Verses Measurement

To date, most conceptualizations of adolescent coping are grounded in Lazarus and Folkman's (1984) transactional model that defines coping as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (p.141). Coping is proposed as volitional, goal-oriented behavior aimed at easing negative affect (*emotion-focused coping*) and/or altering the stressful relationship between the person and the environment (*problem-focused coping*). The emotion-focused versus problem-focused distinction among coping behaviors has generated a large body of research examining the association between coping and adjustment (Compas et al., 2001). In children and adolescents, emotion-focused coping is typically related to higher levels of internalizing and externalizing symptoms and lower levels of academic and social competence whereas problem-focused coping has been associated with lower levels of internalizing and externalizing symptoms and higher levels of competence. However, findings are only modestly consistent, and overall correlations with adjustment are relatively small in magnitude (Compas et al., 2001).

Multiple lines of research have attempted to identify factors that strengthen the coping-adjustment relationship by examining the influence of appraisal processes (Miller & Green, 1985) and specific types of stressors (McMahon, Grant, Compas, Thurm, & Ey, 2003) as well as by searching for more structurally salient dimensions of coping in children and adolescents (Skinner et al., 2003). For example, researchers have re-conceptualized and measured coping behaviors along dimensions of approach and avoidance coping (Roth & Cohen, 1986) or primary and secondary control coping (Rothbaum, Weisz, & Snyder, 1982). Although beyond the scope of the current study, researchers have continued to advance our knowledge of coping's relation to adjustment in youth through multiple avenues (see Compas et al., 2001 for review of this literature). We contribute to this line of research, positing that the mismatch between a transactional conceptualization of the coping process and traditional measures of coping styles may also underestimate the role of coping in adolescent adjustment. In particular, we emphasize the role of the temporal unfolding of strategy use and co-occurring emotional arousal as important components of predominant transactional models of coping in adolescents that are poorly reflected in existing measures (Somerfield & McCrae, 2000).

Temporal or intra-individual variability in the coping process is difficult to discern in most existing measures that tap adolescents' coping *styles* or even discrete *strategies* as unchanging across adolescents' response to a specific potential stressor (Fields & Prinz, 1997). Such measures emphasize inter-individual differences in coping over intra-individual differences captured by transactional models of the coping process. Support for such intra-individual variation comes from studies showing that variability, rather than stability, characterizes coping responses within adults (Folkman & Lazarus, 1980). Although we know little about intra-individual patterns of coping in adolescents, the pioneering work of Inge Seiffge-Krenke and her colleagues provides preliminary evidence of this variation through the use of event sampling and in-depth coping process interviews administered to a small number of adolescents (N=11; Seiffge-Krenke, 1995). However, the extent to which adolescents vary in the types of coping strategies they select in response to a specific stressor as the process unfolds has yet to be evaluated.

A second aspect of the unfolding coping process that is particularly important to examine in adolescence is co-occurring emotional arousal, given that regulating emotions in stressful situations is a central developmental task of this period (Fields & Prinz, 1997). In fact, coping behaviors in adolescence are most likely motivated by and aimed at reducing emotional arousal (Losoya, Eisenberg, & Fabes, 1998). Even in Lazarus and Folkman's transactional model the primary function of coping behavior is to manage external and/or internal demands appraised as exceeding one's resources (Lazarus & Folkman, 1984). Consequently, emotional arousal is an integral part of the coping process that the majority of retrospective questionnaire measures of coping fail to capture. Coping behaviors and emotional arousal are interdependent components of the stress-coping process such that the level of arousal an individual experiences may influence the degree to which coping strategies are effective. Specifically, if an adolescent is highly aroused by an event, she may be too overwhelmed to implement coping strategies effectively. If this were the case, we might expect coping's relationship to adjustment to be weaker at higher levels of arousal.

### Assessing Adolescents' Coping Process

The Adolescent Coping Process Interview (ACPI) was developed to capture these neglected within-person aspects of adolescent coping responses; namely, intra-individual variability in reactions to a given stressor and the interdependence of emotional arousal and coping behaviors within the process. We strove to be conceptually consistent with predominant conceptualizations of stress-coping processes and yet to be practical, using a less demanding format for researchers and participants than observational or event sampling techniques. Specifically, we designed the ACPI to meet three criteria for process measures of coping (Seiffge-Krenke, 1995).

First, we assessed coping within the context of a specific stressful encounter. We chose a hypothetical vignette because this method has been previously used to measure children's cognitive appraisals (Crick, 1995) with less bias and inaccuracy than retrospective reports of coping (Smith, Leffingwell, & Placek, 1999; Stone et al., 1998). We created an innovative video-simulated vignette administered via laptop computer to help adolescents scaffold the somewhat difficult cognitive task of taking themselves through a series of responses to a hypothetical stressful event. Such visual information may not be as affected by individual differences in reading ability compared to written vignettes (Chen & Matthews, 2003; Crick, 1995). Because peer-related stressors are the most commonly rated type of daily hassle in adolescence (Williams & McGillicuddy-De-Lisi, 1999) and because of stronger associations of coping with interpersonal stress and behavior problems (Compas et al., 2001), we selected a peer rejection scenario as a salient stressor tapping more general coping processes in adolescents.

Second, we assessed what adolescents do and feel in dealing with a stressor. We used an interview format which is well-suited to capture the sequence in which coping responses are executed and the ways in which different coping responses are combined (Compas et al., 2001). Rather than using an open-ended interview that can evoke wide variation in the number and type of coping strategies adolescents report (Seiffge-Krenke, 1995), we used a semi-structured interview to capture meaningful and representative coping dimensions within the Lazarus and Folkman framework.

Third, we included multiple assessments as the process unfolds to examine changes over time. Throughout the ACPI, participants are prompted to indicate their level of emotional arousal and subsequent coping strategies over three time periods or *sequences*. Because of the dearth of literature on temporal dimensions of the coping process, we chose time sequences based on meaningful units of time that adolescents could recreate in their heads. These included: the

*initial* sequence (immediately after the stressor occurs), the *short-term* sequence (within the same day as the stressor), and the *long-term* sequence (throughout the following week).

## The Current Study

In the current study, we evaluated the reliability and validity of the ACPI and tested two specific hypotheses based on transactional models of coping that guided the design of the measure. Specifically, we examined whether intra-individual variability existed in the use of coping strategies over the coping process and whether the relationship between coping and adjustment varied as a function of how emotionally aroused an adolescent was by an event.

## Method

### Participants

Participants were part of the High School Transition Study, a four-phase longitudinal study of the transition from 8th to 9th grade. The current sample includes participants in phase four of the larger study. In phase one, 399 adolescents were recruited for a school-based survey from a total of 436 8<sup>th</sup> graders enrolled in seven participating schools (92% participation rate). In phase two, these students were rank ordered according to risk criteria for subsequent substance use (i.e., having either themselves or their friends initiated substance use) and a smaller subsample was recruited during a time-limited period in order of risk for more intense summer assessments occurring before and after 9th grade (phases two and four, accordingly). We attempted to contact 196 phase one participants. Primary reasons for non-participation were inability to contact (n=33), ineligibility (n=21, language barrier, moving, did not pass grade), limited availability (n=17), and privacy concerns (n=9). (No reason was provided for the remaining n=35 who refused participation.) Of 143 eligible, contacted families, 57% or n=81 participated in phase two of the study. Of these, n=50 completed summer interviews after 9<sup>th</sup> grade or phase four of the study.

From these 50 participants, we recruited a second set of participants during phase four of the study by having these adolescents nominate one of their closest friends to participate.<sup>1</sup> Starting with an adolescent's closest friend, research staff mailed an introductory letter, signed by the adolescent, to his or her friend's home. Staff then conducted a follow-up phone call to explain study procedures and obtain consent and assent for the nominated friend. If consent was not obtained, staff called the next friend on the nomination form. A total of 36 participants were recruited through this second procedure. Participants recruited through these two different methods did not significantly differ from each other in age, gender, race, parent education, depression, aggression, anxiety, or substance use (all  $ps > .10$ ).

Two participants were dropped from the study due to extreme scores on coping and outcome measures as well as low self-reported honesty on measures. Thus, participants for the current study were 84 adolescents from a predominantly rural school district (*mean age* = 14.8, 44% males; 51% of participants' parents were college graduates; 71% Caucasian, 13% African American, 8% Multi-Racial, 4% Other 1% Hispanic, 1% Asian, 1% Native American) who completed relevant measures in the summer after they finished 9<sup>th</sup> grade. Sixty-nine of these 84 adolescents had participated in phase one of the study and these participants differed as expected from their peers in phase one (N=331) on having parents with more education ( $t(304) = 3.93, p < .001$ ), greater anxiety ( $t(397) = 2.72, p < .01$ ) and greater alcohol ( $t(395) = 3.70, p < .001$ ) and marijuana use ( $t(394) = 4.59, p < .001$ ). There were no differences in gender, ethnicity,

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<sup>1</sup>Because friends who hang out together tend to be more similar to each other on many behaviors (Hogue & Steinberg, 1995), it was expected that close friends should be more similar on both overall adjustment and coping. Consequently, the second recruitment procedure was considered beneficial much as a yoked-design in experimental studies, intended to reduce extraneous variability among participants and increase power to detect the effects of coping on adjustment.

depressive symptoms or aggression (all  $ps > .10$ ). Moreover, 55 of the participants in the current sample also participated in phase two of the study. They only differed from the remaining adolescents who participated in phase two ( $N=25$ ) in using marginally less alcohol ( $t(78) = -1.73, p = .08$ ).

## Procedure

The summer after ninth grade, participants were interviewed either at their homes or the university. Research assistants obtained written parental consent and adolescent assent from all participants. The ACPI was completed via notebook computer as part of a larger battery during these interviews, with the interviewer reading aloud questions while participants entered their answers confidentially. Additionally, a Certificate of Confidentiality was obtained from the U.S. Department of Health and Human Services to protect participant confidentiality. All participants were compensated for completing the study.

## Measures

**Internalizing Symptomatology**—Ten items from the 28-item Revised Children's Manifest Anxiety Scale (Reynolds & Richmond, 1978) were administered to participants to assess anxiety symptoms. Items were chosen to shorten the scale based on results of a previous study (Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000). Participants rated items as being (1) true or (0) not true of them in the past three months. A mean of these items formed the current anxiety scale ( $M = .36, SD = .32$ ; Cronbach's  $\alpha = .87$ ). The Short Mood Feelings Questionnaire-Child (Angold et al., 1995) was administered to participants to assess depression in the past three months. Participants rated these 13 items as (2) true, (1) sometimes true, or (0) not true of them. A mean of responses formed the current depression scale ( $M = .51, SD = .47$ ;  $\alpha = .92$ ). A mean of the standardized anxiety and depression scales formed the internalizing scale used in the current study ( $M = 0, SD = .88$ ;  $\alpha = .93$ ).

**Externalizing Symptomatology**—Sixteen items from the Problem Behavior Frequency Scale (Farrell, Kung, White, & Valois, 2000) were administered to participants to assess the frequency of problem behaviors in the past three months. Items were rated on a 6-point scale ranging from (0) Never to (5) 20 times or more and assessed non-physical aggression (seven items), physical aggression (six items), and delinquency (three items). (Four items assessing the school context were omitted because they were inappropriate for the summer interviews.) A mean of these items formed the externalizing scale ( $M = .58, SD = .57$ ;  $\alpha = .90$ ).

**Coping Styles**—Items taken from the Adolescent Coping Orientation for Problem Experiences (A-COPE; Patterson & McCubbin, 1987) were used to assess the frequency of coping behaviors in the past three months. For the current study, the 19 items comprising the four subscales relevant for convergent validity analyses were used. Items from non-relevant scales (e.g. seeking spiritual support) were not used in the current study. Items were rated on a 5-point scale ranging from (1) Never to (5) Most of the time. A mean of items from each of the subscales formed measures for the current study, including venting (6 items;  $M = 2.43, SD = .75, \alpha = .75$ ), developing self-reliance (6 items;  $M = 3.17, SD = .76, \alpha = .73$ ), and developing social support (6 items;  $M = 2.92, SD = .83, \alpha = .80$ ). Subscale reliabilities were largely consistent with those reported by Patterson and McCubbin ( $\alpha = .60-.76$ ); however, the avoidance scale had low reliability in the current study ( $\alpha = .18$ ), most likely due to the low number of items.<sup>2</sup> Thus the most representative single item (“tell myself the problem is not important”) was used for analyses ( $M = 2.47, SD = 1.26$ ).

<sup>2</sup>We dropped several items from the A-COPE avoidant subscale (e.g., “drink beer, wine, or liquor”) because they overlapped with substance use items which we considered an outcome in other related work. In addition, we wanted avoidance as a dimension of coping to be separate from indices of maladaptive behavior.



**ACPI**—The ACPI was administered to participants to indicate the series of coping strategies and co-occurring negative emotional arousal that adolescents employ in response to a peer-related stressor. In this interview, participants watched a video simulating peer rejection (not being invited to a party), pretended that they were experiencing the same event, and then reported how they would deal with the same problem if it were happening to them. The interview, which takes approximately 10–15 minutes, captures negative emotional arousal and coping strategies immediately after the stressor occurs (the *initial time sequence*), within the same day as the stressor (the *short-term time sequence*), and throughout the following week (the *long-term time sequence*; see Figure 1). The ACPI assesses the degree of perceived controllability over the stressor at the initial time sequence, negative emotional arousal (stress, anger, sadness, and anxiety) at each time sequence, and the likelihood of selecting each of the 11 coping strategies at each time sequence. In addition, within each time sequence an open-ended response option assessed if the participant would have responded to the situation in a manner not mentioned in the stated coping strategies. At the end of the interview, participants were asked to rate how well they dealt with the problem overall. A 5-point scale ranging from (1) not at all to (5) extremely was used for all items except the open-ended responses. See Figure 1 for selected example items.

The eleven coping strategies reflect those most commonly assessed in adolescents and include passive avoidance, active avoidance, emotional support seeking, cognitive reframing, acceptance, and venting feelings (frequently related to emotion-focused coping) and seeking information internally, planful problem solving, confrontation, self-improvement, and instrumental support seeking (frequently related to problem-focused coping).<sup>3</sup> Two sets of coping variables were defined from the ACPI reflecting *coping strategies* (using a single item within sequence to examine intra-individual variability in the process) and *coping subscales* (based on the mean use of a single strategy across the three sequences to examine psychometric properties). Additionally, two scales for emotional arousal were formed by averaging across the four reports of negative affect assessed immediately after the peer-stressor occurred (initial emotional arousal) and at the end of the week (long-term emotional arousal). The psychometric properties of the ACPI are presented in the results section.

**Social Desirability**—Nine items that comprised the lie subscale from the 28-item Revised Children’s Manifest Anxiety Scale (Reynolds & Richmond, 1978) were administered to participants. Items were rated as true or false in the past three months and a sum of responses formed the scale used in the current study ( $M = .20$ ,  $SD = .23$ ,  $\alpha = .75$ ).

**Social Stress**—Twelve items adapted from Kohn’s scale of adolescent daily hassles (Kohn & Milrose, 1993) indicated the frequency of socially-related daily hassles in the past three weeks. Because the ACPI uses a peer stressor, items were separated into two scales based on whether they were peer-related or not. Items were rated on a scale ranging from (0) not at all to (5) every day and a mean of items formed both the peer-related (six items; e.g., “how often did you have someone stop being your friend”;  $M = .55$ ,  $SD = .69$ ,  $\alpha = .80$ ) and the general social stress (six items; e.g. family and romantic stressors;  $M = .92$ ,  $SD = .79$ ,  $\alpha = .76$ ) scales used in the current study.

<sup>3</sup>Coping strategies were intended to load onto the higher-order categorization of problem-focused and emotion-focused coping. Confirmatory factor analyses did not support the hypothesized structure. EFA and CFA results showed that the emotion-focused and problem-focused distinction was not apparent in these scales, not dissimilar to results of other studies that fail to replicate the higher order structure (see Skinner et al., 2003) and thus analyses focused on individual strategies.

## Results

### Preliminary Results

On average, adolescents said they would be immediately “somewhat” aroused ( $M=2.80$ ,  $SD = 1.01$ ) if such an event happened to them and that they would have “a little” control ( $M=1.94$ ,  $SD=0.94$ ) over what happened. Across the entire coping process, adolescence using each coping subscale “a little” to “somewhat” on average ( $M$ s ranging from 2.44–2.99), with acceptance being the most frequently used type of coping (see Table 1 for descriptive statistics on all relevant ACPI scales). Consistent with the literature (Compas et al., 2001), girls were also more likely than boys to use all types of coping ( $t$ 's ranging from 2.03–6.82, all  $p<.05$ ) except planful problem solving ( $t=1.29$ ,  $p=.20$ ) and acceptance ( $t=0.38$ ,  $p=.70$ ).

Unconditional Hierarchical Linear Models (HLM, Raudenbush & Bryk, 2002) estimating inter-individual and intra-individual variability in coping subscales as well as internalizing and externalizing symptoms found greater similarity within than across friendship groups for these variables. Specifically, significant variability across individuals existed for all constructs, ranging from ( $Z = 4.69$ ,  $p < .0001$ ) to ( $Z = 4.87$ ,  $p < .0001$ ), whereas significant variability across friendship group was present only for internalizing symptoms ( $B = .24$ ,  $Z=2.02$ ,  $p < .05$ ).<sup>4</sup>

### Reliability and Validity of Coping

We assessed the psychometric properties of each of the 11 coping subscales (see Table 1). All scales showed adequate reliability ( $\alpha > .72$ ) with the exception of the passive avoidance scale ( $\alpha = .60$ , consistent with findings about other avoidant coping measures, Skinner et al., 2003). Relations among scales ranged from small to substantial in magnitude, indicating that some strategies were used together whereas others were not.

Several indicators supported the effectiveness of the hypothetical vignette. Participants reported that their answers were typical of how they would handle a similar peer rejection situation ( $M = 4.05$  indicating “very much typical”). In addition, lower levels of arousal at the end of the coping process were associated with feelings of having dealt with the problem more effectively ( $r = -.32$ ,  $p < .001$ ). Finally, consistent with previous findings (Prinstein, Boergers, & Vernberg, 2001), initial levels of arousal in response to the hypothetical peer-rejection experience were associated with internalizing ( $\beta = .21$ ,  $t = 2.06$ ,  $p < .05$ ), but not externalizing ( $\beta = .14$ ,  $t = 1.21$ ,  $p = .23$ ) symptoms, after controlling for gender.

We assessed convergent validity by examining the correlation of each ACPI subscale with the most theoretically similar scale on the A-COPE. Divergent validity was assessed by examining correlations with social desirability, general social stress, and peer-related stress. We expected ACPI subscales to display fairly small correlations with social desirability (a personality trait) and moderate correlations with general social stress and peer-related stress (since stress and coping should be related, yet distinguishable). As expected, most convergent correlations were moderate to large ( $r$ s = .25–.61) while divergent correlations were small to moderate in magnitude ( $r$ s = .01–.33; see Table 2). Supporting the validity of the ACPI subscales, Fisher's  $r$ -to- $z$  transformation found stronger associations of each subscale with the convergent A-COPE scale than with the divergent measure of social desirability (all  $p$ s  $< .05$ ) or with the majority of social and peer-related stress scales.<sup>5</sup> We also found that the convergent correlation

<sup>4</sup>Consequently, models concerning coping strategies and affective arousal as predictors of internalizing symptoms were estimated within the HLM framework to account for friendship group similarity whereas similar models predicting externalizing symptoms were run using OLS regression. All models testing intra-individual variability in coping were tested using the HLM framework, accounting for nesting of repeated observations within individuals but not for individuals within friendship groups, given the lack of evidence for coping similarity within friendship group.

of the initial arousal scale of the ACPI with adolescent's recent experience of peer stress ( $r = .40$ ) was greater than the divergent correlation of peer stress with social desirability ( $r = -.01$ ;  $Z = 3.90, p < .001$ ).

Finally, we tested concurrent validity of the ACPI by examining whether select subscales predicted adjustment as reflected in the broader literature. Based on association of these ways of coping with adjustment found in reviews of the literature (Compas et. al., 2001, p.118–119; Fields & Prinz, 1997), we hypothesized that planful problem solving, cognitive reframing, and confrontation should predict less internalizing and externalizing symptoms whereas passive avoidance, acceptance, and venting feelings should predict greater symptoms. To examine the unique prediction of each subscale to symptom outcomes, we ran two regression models (one for internalizing and one for externalizing) in which we controlled for gender and included all ACPI scales posited to predict the symptom outcome. Results indicated that girls were more likely to report greater internalizing symptoms, but there were no gender differences in externalizing symptoms. Above and beyond gender and other ACPI subscales, acceptance, confrontation, and venting uniquely predicted internalizing symptoms as hypothesized. However, venting was the only subscale to predict externalizing symptoms (see Table 3). Significant findings remained unchanged after controlling for similar A-COPE subscales (i.e. trait-level coping) for confrontation and acceptance, indicating that these ACPI scales uniquely predicted internalizing symptoms beyond an adolescent's coping style. However, the venting sub-scale became marginally significant for internalizing and non-significant for externalizing when controlling for similar A-COPE scales.

As a basis for comparison, we also examined which of the four A-COPE subscales of developing self-reliance, avoiding problems, developing social support, and venting feelings were unique predictors of symptom outcomes. Consequently, two similar regression models were run for the A-COPE subscales (see Table 3). For the internalizing model, developing self-reliance was marginally predictive. For the externalizing model, only venting feelings scale was a significant predictor. Therefore, ACPI subscales evidenced more consistent relations to internalizing symptoms than A-COPE subscales, whereas the A-COPE scale of venting appears to be the most consistently related to externalizing symptoms.

### Intra-Individual Variability in Coping

To examine whether there was significant intra-individual variation in coping across the process, we used HLM to analyze repeated assessments of coping (level 1) as nested within individuals (level 2). Fully unconditional models in which no predictors were specified at either level were run for all 11 coping strategies. From these models, we found significant intra-individual variability in all eleven coping strategies with  $\sigma^2$  ranging from .39 ( $Z = 3.49, p < .001$ ) to 1.12 ( $Z = 5.34, p < .001$ ). Intra-class correlations indicated that anywhere from 31–63% of the variability in coping was due to intra-individual variability in strategy use across sequence.

### Coping Strategies and Affective Arousal

Finally, we examined whether the association between each coping dimension and adjustment varied as a function of how emotionally aroused an adolescent was by the hypothetical stressor. To avoid confounding coping efficacy with arousal (i.e., effective strategies may reduce arousal at subsequent time sequences), we used initial arousal as our measure of arousal. We ran separate regression models, controlling for gender and centering all predictors to avoid problems of unnecessary collinearity between predictors and interaction terms (Aiken & West,

<sup>5</sup>One of the factors that appears to have contributed to non-significant comparisons between convergent and divergent indices is the low convergent correlation with the avoidance subscale of the A-COPE (most likely because it contained a single item).



1991). No significant results were found for internalizing symptoms. However, externalizing symptoms were predicted by planful problem solving, seeking information internally, and confrontation as a function of initial emotional arousal (see Table 4). A trend existed for emotional support seeking and self-improvement to predict externalizing symptoms. Probing these interactions (as outlined by Aiken & West, 1991) showed a similar pattern for all three ways of coping. Specifically, higher levels of coping were related to less externalizing symptoms only at fairly low levels of arousal (i.e., if an adolescent reported being “somewhat” emotionally aroused or less initially; see Figure 2).

## Discussion

The current study provides preliminary support for the ACPI as a promising measure of adolescents’ unfolding coping responses to peer-related stressors in a manner more consistent with predominant conceptualizations of stress and coping. We found evidence for adequate reliability (with the exception of avoidance, as found in studies of other measures; Kliever, Fearnow, & Miller, 1996) as well as overall support for the convergent, divergent, and incremental predictive validity of the ACPI subscales for coping and co-occurring emotional arousal. As such, the current results suggest that hypothetical video vignettes like the ACPI can capture salient components of adolescent coping responses in an accessible format to examine important questions that can enhance our understanding of stress-coping processes in adolescence.

### Tests of Underlying Assumptions

Importantly, the current study is the first to our knowledge to support the presence of intra-individual variability in coping strategy use across the process; that is, adolescents do change in the extent to which they report using various ways of coping as the process unfolds. Indeed such intra-individual variability in the use of coping strategies accounted for 31–63% of the variability in adolescent coping, making it a substantial source of variation that may offer important prediction beyond established between-person predictors of adjustment outcomes. Although beyond the scope of the current study, examining the timing of or the specific sequencing of coping strategies that may be effective for dealing with certain types of stressors may provide essential information about specific points of intervention in the coping process. In addition, examining unfolding coping patterns may allow us to move beyond personality variables of how people tend to respond across situations and examine contextual influences such as caregiver coaching or available coping resources that shape and govern the development of coping processes across adolescence.

Findings also lend preliminary support for the moderating effect of emotional arousal on coping’s relationship with externalizing symptoms in response to a peer stressor. Adolescents who are even moderately aroused by a peer-related stressor did not exhibit the buffering effect of behavioral strategies (e.g., confrontation, internal information seeking, and planful problem-solving) on externalizing symptoms that adolescents who are only slightly aroused by this stressor displayed. This may indicate that more highly aroused adolescents who use behavioral strategies, such as confrontation, are not as effective at implementing them. Such findings are consistent with research on the social-cognitions and behaviors of aggressive youth who are more apt to make hostile attributions about ambiguous events, become angry, and retaliate (Dodge & Coie, 1987; Lochman & Lenhart, 1993). Consequently, an adolescent may need to use other types of coping techniques to down-regulate their arousal before they can effectively implement more active ways of coping. Although these findings are preliminary and in need of replication, similar hypotheses about specific types of emotional arousal (such as anger) or the sequencing of strategy use can be tested using process measures like the ACPI.

### Building upon the ACPI's current form

Current evidence supports the underlying assumptions of the ACPI and suggests the utility of building on this framework. For example, the ACPI subscales' association with internalizing but not externalizing symptoms (with the exception of venting) may reflect the nature of the specific stressor we chose. Indeed past research has found a significant relationship between peer victimization in adolescence and internalizing, but not externalizing, symptom (Prinstein et al., 2001). Consequently, adolescents' efforts to cope with peer rejection may only relate to internalizing outcomes because this may be a relevant risk outcome for this specific form of stress. Such specificity models are gaining support in the literature (McMahon et al., 2003) and point to the need to consider other types of stressors (e.g., family or school-related stressors) in understanding coping processes and providing more robust prediction of specific stressor-adjustment relationships in adolescence.

The relatively modest strength of relationships and some inconsistent prediction across sub-scales, namely no significant relationship between planful problem-solving or cognitive reframing and internalizing symptoms, necessitates additional refining of sub-scales and structural components of the ACPI. Debates regarding the structural components of coping continue to plague the field in general (Skinner et al., 2003) and thus will need to be considered here. Structural components of adolescents' coping styles as currently assessed may not map identically onto the structure of coping behaviors as assessed by more process-oriented interviews. Future refinements may also want to consider incorporating additional aspects of the coping process like appraisal processes that may better delineate specific conditions under which forms of coping are linked to adjustment outcomes. Furthermore, while hypothetical vignettes are a useful and accessible format for assessing unfolding coping processes and appear to have adequate validity within the current study, future studies will need to triangulate on how adolescents' hypothetical reports of coping map onto other reporting and observational methods.

### Limitations and Conclusions

Although the current findings suggest that the ACPI provides a promising tool for capturing adolescent coping processes, limitations of the current study should also be acknowledged. The relatively small sample size for the current study limits the generalizability (in terms of age, ethnicity, and geographic location) and may have underpowered some tests, particularly those examining moderating effects. Although only a narrow sampling of development, we feel the transition to high school provides an excellent context for examining patterns of coping, particularly for peer stressors that are more likely to occur with sometimes stressful disruptions in friendship networks (Brown, 2004). Therefore, future research should examine differences in adolescent coping process across larger, more culturally diverse samples and developmental contexts. In addition, tapping adolescence responses to a salient, but singular, stressor raises issues about the generalizability of findings to other forms of stress such as major life events. Consequently, it will be important for future studies to examine whether there are meaningful differences in the patterns and timeframes of unfolding coping behaviors across various forms of stress.

It is also important to note that findings are cross-sectional which does not allow us to draw inferences about the direction of the relationship between coping and adjustment. We know that certain types of coping may lead to increased symptomatology, but symptomatology also can give rise to certain types of coping (Compas et al., 2001). Longitudinal studies examining coping process prediction to adjustment, particularly during key transition periods, may provide more robust prediction to outcomes as well as important information for points of intervention.

The current findings challenge the need to limit our investigations to traditional measures of coping styles as proxies for the complex dynamic among appraisals, behaviors, and arousal that comprise the coping process. The rich within-person data offered by the ACPI can identify specific patterns of coping strategies that may be more powerful predictors of relevant outcomes. As such, this approach shows great promise for informing prevention and treatment efforts with youth by identifying points of intervention within the unfolding coping process. Much like work about hostile attribution biases in which a specific cognitive twist can alter the social-cognitive process to yield aggressive behavior (Dodge & Coie, 1987), by identifying poignant moments in the coping process through measures like the ACPI, interventions can more specifically pin point processes of risk. Although the current way of measuring coping (via styles) offers important trait-level information about generally adaptive or maladaptive coping tendencies, this approach does not offer specific cognitive or affective points in the process from which to begin to change such general coping tendencies. Measures that are more in line with transactional theory will push the field to understand important patterns of coping strategies that may help refine and enhance current coping models.

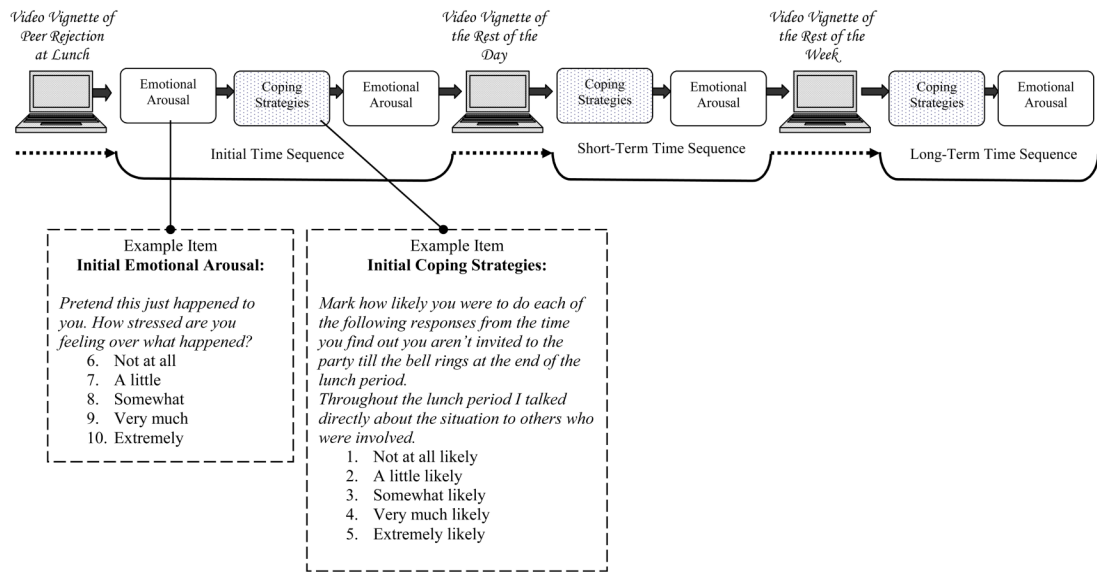
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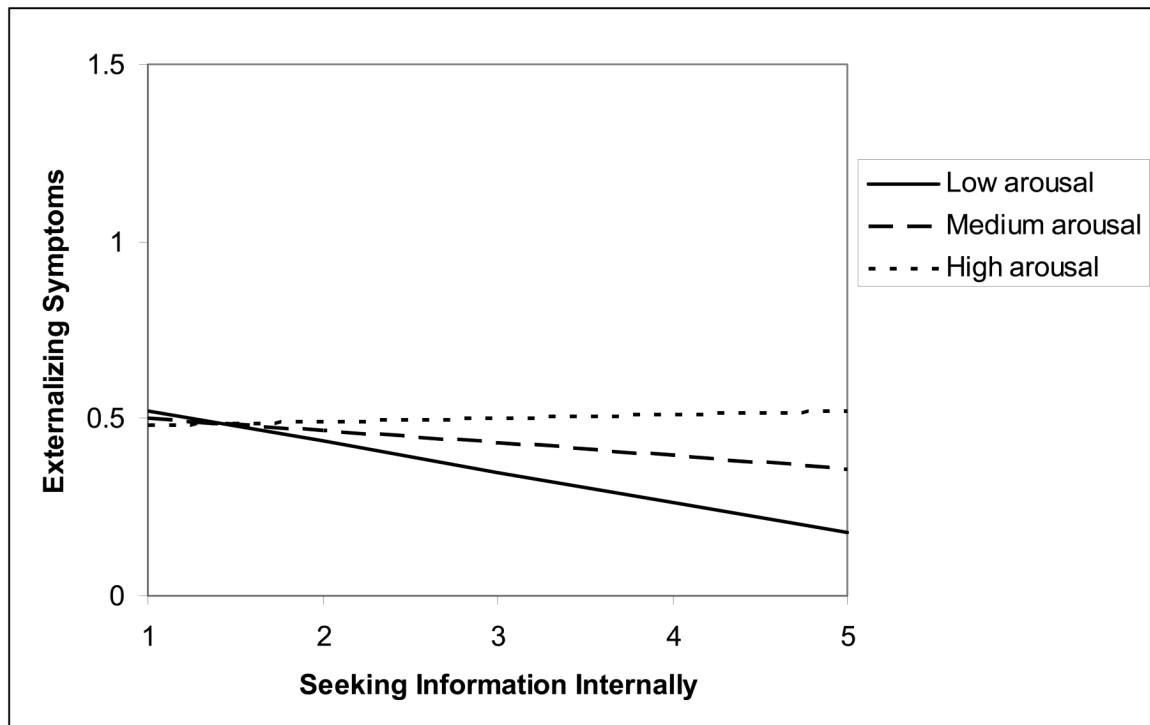
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**Figure 1.** Diagram of the Adolescent Coping Process Interview (ACPI).





**Figure 2.**  
Plot of arousal \* internal information seeking coping predicting externalizing symptoms.

Table 1  
Psychometric properties of coping subscales for the Adolescent Coping Process Interview

ACPI Coping Subscale	Mean	SD	$\alpha$	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Venting feelings	2.44	.98	.75	---	.27	.47	.59	.47	-.02	.57	.42	.41	.56	.46	.54	.40
2. Passive avoidance	2.61	.85	.60	---	---	.24	.26	.45	.43	.42	.27	.26	.38	.42	.20	.21
3. Active avoidance	2.50	1.04	.80	---	---	---	.66	.47	-.11	.46	.40	.52	.52	.50	.53	.39
4. Emotional support seeking	2.88	1.25	.86	---	---	---	---	.59	-.02	.66	.45	.62	.74	.58	.64	.43
5. Cognitive reframing	2.58	1.01	.82	---	---	---	---	---	.27	.77	.63	.56	.68	.84	.39	.23
6. Acceptance	2.99	1.15	.83	---	---	---	---	---	---	.03	.00	.08	.00	.21	-.22	-.15
7. Seeking info internally	2.77	1.02	.80	---	---	---	---	---	---	---	.75	.53	.72	.71	.58	.40
8. Planful problem solving	2.67	1.10	.83	---	---	---	---	---	---	---	---	.48	.61	.63	.50	.32
9. Confrontation	2.59	.95	.73	---	---	---	---	---	---	---	---	---	.62	.58	.42	.11
10. Instrumental support seeking	2.65	1.16	.85	---	---	---	---	---	---	---	---	---	---	.65	.50	.37
11. Self-improvement	2.57	.99	.72	---	---	---	---	---	---	---	---	---	---	---	---	.26
12. Initial Emotional arousal	2.80	1.01	.86	---	---	---	---	---	---	---	---	---	---	---	---	.50
13. Long-term Emotional arousal	1.71	.84	.87	---	---	---	---	---	---	---	---	---	---	---	---	---

Note: Significant correlations  $p < .01$  bolded,  $p < .05$  bold italicized.

**Table 2** Convergent and divergent validity correlations of the ACPI with the A-COPE, social desirability, and stress scales

ACPI Coping Subscale	A-COPE Convergence Scale	Social Desirability	Fisher's R-to-z	Gen. Social Stress	Fisher's R-to-z	Peer Stress	Fisher's R-to-z
Venting feelings	.36**	.06	2.85**	.16	1.94*	.33**	0.31
Passive avoidance	.33**	-.06	3.63**	.24*	0.88	.20	1.26
Active avoidance	.40**	.09	3.01**	.09	3.01**	.11	2.82**
Emotional support seeking	.60**	.15	4.88**	.12	5.15**	.21*	4.32**
Cognitive reframing	.50**	.19	3.22**	.05	4.49**	.10	4.04**
Acceptance	.22*	-.10	2.92**	.16	0.56	.13	0.84
Seeking info internally	.37**	.15	2.14**	.14	2.23**	.23*	1.39
Planful problem solving	.36**	.09	2.59**	.09	2.58**	.13	2.22**
Confrontation	.55**	.25*	3.27**	.10	4.66**	.13	4.39**
Instrumental support seeking	.61**	.17	4.84**	.09	5.57**	.13	5.20**
Self-improvement	.53**	.28*	2.72**	.01	5.22**	.13	4.13**

\* Note.  $p < .01$ ,

$p < .05$ .

**Table 3**  
 Concurrent validity of the ACPI subscales and A-COPE with internalizing and externalizing symptoms

Coping Dimensions	Internalizing		Externalizing	
	$\beta$	t	$\beta$	t
<b>ACPI</b>				
	Model 1		Model 2	
Gender	-0.79	-4.19**	0.14	0.98
Planful problem solving	-0.01	-0.13	0.03	0.44
Cognitive reframing	0.01	0.08	-0.07	-0.75
Passive avoidance	0.16	1.45	-0.13	-1.50
Confrontation	-0.34	-3.16**	-0.09	-1.02
Acceptance	0.18	2.26*	0.10	1.57
Venting feelings	0.24	2.50*	0.17	2.21*
<b>A-COPE</b>				
	Model 3		Model 4	
Gender	-0.74	-3.27**	0.26	1.72 <sup>t</sup>
Developing Self-Reliance	-0.25	-1.73 <sup>t</sup>	-0.03	-0.34
Venting Feelings	0.18	1.53	0.25	2.95**
Avoiding Problems	0.12	1.40	0.06	1.04
Developing Social Support	0.06	0.39	-0.01	-0.07

Note. Internalizing models were run in HLM; Externalizing models were run in OLS regression;

\*\*  
 $p < .01$ ,

\*  
 $p < .05$ ,

<sup>t</sup>  
 $= p < .10$ .

**Table 4**  
Coping and Arousal Predicting Adjustment (controlling for gender)

ACPI Coping Subscale	Main Effect of Coping		Main Effect of Init Arousal		Interaction Coping * Arousal	
	Beta	T-statistic	Beta	T-statistic	Beta	T-statistic
<b>INTERNALIZING</b>						
Venting feelings	0.09	0.86	0.11	1.06	0.08	0.90
Passive avoidance	0.22	2.13*	0.13	1.49	-0.01	-0.15
Active avoidance	-0.17	-1.63	0.22	2.23*	-0.05	-0.53
Emotional support seeking	-0.06	-0.58	0.18	1.71	0.08	1.05
Cognitive reframing	0.04	0.10	0.14	1.52**	-0.04	-0.48
Acceptance	0.25	3.40**	0.24	2.65**	0.02	0.30
Seeking info internally	0.09	0.82	0.11	1.02	0.06	0.77
Planful problem solving	-0.10	-1.07	0.21	2.08*	0.09	1.15
Confrontation	-0.27	-2.58**	0.21	2.30*	-0.06	-0.77
Instrumental support seeking	-0.07	-0.77	0.18	1.84	-0.06	-0.80
Self-improvement	0.08	0.83	0.13	1.44	-0.04	-0.47
<b>EXTERNALIZING</b>						
Venting feelings	0.08	1.02	0.03	0.38	0.08	1.21
Passive avoidance	-0.09	-1.24	0.08	1.21	-0.07	-1.06
Active avoidance	-0.13	-1.71 <sup>t</sup>	0.12	1.66	0.02	0.36
Emotional support seeking	-0.07	-1.00	0.10	1.29	0.10	1.85 <sup>t</sup>
Cognitive reframing	-0.08	-1.14	0.09	1.34	0.08	1.44
Acceptance	0.04	0.78	0.08	1.19	-0.03	-0.44
Seeking info internally	-0.10	-1.32	0.11	1.51*	0.13	2.21*
Planful problem solving	-0.05	-0.76	0.10	1.36	0.11	1.95*
Confrontation	-0.13	-1.70 <sup>t</sup>	0.12	1.75 <sup>t</sup>	0.11	1.96*
Instrumental support seeking	-0.12	-1.94*	0.13	1.76 <sup>t</sup>	0.08	1.62
Self-improvement	-0.11	-1.57	0.09	1.47	0.10	1.76 <sup>t</sup>

Note: Internalizing models were run in HLM; Externalizing models were run in OLS regression;

\*\*  $p < .01$ ,

\*  $p < .05$ ,

<sup>t</sup>  $p < .10$ .