THE ROLE OF COPING WITH PEER STRESS IN ADOLESCENT DEPRESSION: A CLOSER LOOK AT COPING IN PROCESS

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A dissertation submitted to the faculty of the University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Department of Psychology.

Chapel Hill
2006

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ABSTRACT

Laura Feagans Gould: The Role of Coping with Peer Stress in Adolescent Depression: A Closer Look at Coping in Process

(Under the direction of Andrea M. Hussong)

The current study examined how theoretically relevant yet unexplored aspects of adolescent coping responses were related to symptoms of depression. Specifically, the emotion regulatory function of coping behaviors as well as an adolescent's relative use of coping dimensions and trajectories of adolescent coping were examined in response to a peer-related stressor. The Adolescent Coping Process Interview (ACPI), a scenario-based video vignette measure designed to assess adolescents' unfolding emotional arousal and coping responses as well as a standard depression measure were administered to 84 adolescents (*mean age* = 14.8, 43% males) from a predominantly rural school district. Results from the current study do not support the emotion regulatory function of coping behaviors in relation to depression. However, results do suggest that an adolescent's relative use of coping dimensions, possibly reflecting a more "ruminative" response pattern, are positively associated with depressive symptoms above and beyond demographic characteristics or single dimensions of coping. In addition, findings offer preliminary support for the importance of the timing of coping behaviors within the coping process. Findings are discussed within the broader framework of using the current approach to assess adolescent coping responses and their relation to psychopathology.

DEDICATION

For my mother, who has always told me I could *be* or *do* anything I set my mind to.

ACKNOWLEDGEMENTS

I am extremely grateful to the many people who lent their time, talent, and resources to help support and bring this labor of love to fruition. First, I would like to thank my husband, Tate, whose unwitting patience, support, and occasional "accountability" helped me persist and keep it all in perspective. His constant and genuine love inspires me everyday. Thanks also to my friends and family who listened to and encouraged me (usually in that order) throughout this process and graduate school in general. I am particularly indebted to Andrea for believing in my ideas long before I did and dedicating her time and talent to helping me gain confidence in my own potential. I consider myself extremely blessed to have a mentor of such exceptional skill and impeccable character. Andrea's dedication to her craft and students as well as her kindness are reflected in the pages that follow. In addition, the members of my committee offered thoughtful guidance and suggestions throughout the process for which I am grateful. Special thanks to Mary Keeley and Kris Hixson for their dedication and hard work on the ACPI as well as the joy they brought to the process of constructing the measure. I appreciate the financial support provided by the National Institutes on Drug Abuse, the UNC Office of Undergraduate Research, and the Carolina Consortium on Human Development that allowed me to undertake this project over the course of many years. Finally, thanks to the adolescents and families who allowed us into their lives to gain a small window into themselves and their experiences.

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LIST OF ABBREVIATIONS

Abbreviation	Corresponding Term
PF coping…….	Problem-focused engagement coping
EF coping…….	Emotion-focused engagement coping
EFD……..	Emotion-focused disengagement
EFD-PF Coping……	A ratio indexing "ruminative" coping that reflects the proportion of an adolescents coping characterized by emotion-focused engagement and disengagement coping
EA…….	Emotional arousal
POV……..	Percent of variance explained
M (SD)……..	Mean (Standard Deviation)

CHAPTER 1

INTRODUCTION

Adolescence is a period marked by rapid cognitive, social, emotional, and physical change (Forman, 1993) as well as stressful transitions in school settings, family roles, peer relationships, and physical appearance. Researchers continue to purport that the manner in which young people adapt and cope with such stressful encounters and transitions influences their overall adaptation (Garmezy, 1987; Roth & Cohen, 1986) and serves as an important moderator and mediator of the impact of stress on current and future adjustment (Compas, Connor-Smith, Saltzman, Harding Thomsen, & Wadsworth, 2001). Accumulating evidence supports the role of coping processes in the onset and maintenance of a wide range of psychological distress and psychopathology during adolescence (Compas, Orosan, & Grant, 1993). Indeed, the relationship between stress and coping and psychological adjustment in childhood and adolescence has been the topic of well over 1,000 empirical articles published in scientific journals between 1987-2001 alone (McMahon, Grant, Compas, Thurm, & Ey, 2003).

Despite the abundance of research on coping and its importance to psychological adjustment, our current understanding of how adolescent coping is related to psychological adjustment is fairly limited. Much of what we currently know about copings' relation to adolescent adjustment is based on the impact of adolescent coping *styles* (i.e., the general tendency to use a specific form of coping) on psychopathology. However, the stress-coping

process in adolescence has long been conceptualized as a transactional progression in which an adolescent's subjective appraisals of a specific event, co-occurring emotional arousal, and subsequent coping *strategies* unfold over time (Somerfield & McCrae, 2000). Thus, adolescent coping *styles* are somewhat inconsistent with predominant conceptualizations of the stress-coping process in adolescence. Additionally, such trait-level tendencies blur distinctions between an individual's coping efforts and symptoms of psychopathology, making it difficult to tease apart whether reported coping styles better reflect actual coping or symptomatology. Finally, while the field has made strides in establishing salient forms (or dimensions) of adolescent coping responses (Conner-Smith, Compas, Wadsworth, Harding Thomsen, & Saltzman, 2000), theoretically-grounded research on how these dimensions of coping lead to or result from psychopathology is largely absent from the literature. The field is in need of more theoretically-driven research to clarify the differential role coping plays in the onset and maintenance of specific psychological disorders (McMahon et al., 2003). Consequently, the overall aim of the current study is to examine how conceptually neglected yet theoretically informed aspects of adolescent coping processes are related to depression, the most commonly occurring disorder in adolescence (Graber, 2004).

Depression stands out among psychological problems in adolescence for its prevalence as well as its substantial short-and long-term impact on psychological functioning (Petersen et al., 1993). Characterized by feelings of sadness and negative affectivity (or irritability in children and adolescence), sub-clinical symptoms of depressed mood as well as clinical levels of depressive disorders are fairly low in childhood and rise dramatically during adolescence, particularly for females (Lewinsohn, Rohde, & Seeley, 1998; Petersen et al., 1993). Stress-coping processes are common among and central to predominant theoretical

models that attempt to explain the emerge of depression in adolescence (Gore, Aseltine, & Colten, 1993; Hankin & Abramson, 2001; Nolen-Hoeksema, 1994; Rudolph, 2002). These models purport that increases in uncontrollable and interpersonal stressors encountered in adolescence interact with specific cognitive vulnerabilities to explain the emergence of depressive symptoms, mostly among females. These theories bring adolescent coping processes to the forefront as important for understanding for whom and through what mechanisms depression develops. Indeed, substantial evidence from the coping field has linked adolescent coping styles concurrently and prospectively to depressive and internalizing symptoms and disorders (Compas et al., 2001; Fields & Prinz, 1997; Seiffge-Krenke, 1993).

Despite this empirical link and the centrality of stress and coping processes to adolescent depressive phenomena, our current understanding of specific coping processes that lead to depression is limited by the lack of theoretically informed and process-oriented research. It is my belief that theoretically-driven inquiry into adolescents' unfolding coping responses to specific yet salient stressors may provide preliminary steps in elucidating cumulative processes through which coping may play a role in depressive outcomes.

Current Knowledge of the Coping-Depression Relationship

By far the most widely used conceptualization of stress and coping processes in adolescence is Lazarus and Folkman's original transactional model (Carver, Scheier, & Weintraub, 1989) in which they define 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"(Lazarus & Folkman, 1984, p.141). The transactional model hinges upon what they term cognitive appraisal processes in response to

a specific event. Specifically, primary appraisal is the perception of how stressful an event is and secondary appraisal is the evaluation of available resources and responses to deal with the stressor. These preliminary processes feed into goal-directed cognitions and behaviors, termed *coping*. Coping is then proposed as volitional and goal-oriented behavior aimed at easing negative affect (i.e. *emotion-focused* coping) and/or altering the stressful *relationship* between the person and the environment (i.e. *problem-focused* coping).

The transactional model has served as the foundation for much of adolescent coping research to date because of its conceptual clarity in outlining what the stress-coping process entails. Specifically, this foundational model delineates coping efforts as: (1) in response to an event subjectively appraised as stressful; (2) effortful and volition; (3) functional, in that they are aimed at palliating the negative arousal state inherent in the stressful transaction (emotion-focused) or at changing the person-environment relationship (problem-focused); and (4) a dynamic process in which changing circumstances, appraisals, and the effectiveness of coping efforts feed back and forth to influence each other over time. Whereas most of these aspects of the stress-coping process continue to be debated in the field, Lazarus and Folkman's conceptualization has guided much of the research agenda on adult and adolescent coping over the past several decades (Skinner, Edge, Altman, & Sherwood, 2003). Consequently, one of the primary objectives of research on adolescent stress and coping processes has been to link these outlined dimensions of coping efforts to salient adjustment outcomes (Compas et al., 2001).

From this tradition comes the majority of evidence we have about coping's relationship to the development of depressive phenomena in adolescence. The vast majority of studies have included depressive outcomes as one part of a general adjustment syndrome

of *internalizing* that includes both anxiety and depression symptoms[1]. It follows that research to date has largely focused on how Lazarus and Folkman's *functional* dimensions of coping (e.g. emotion- and problem-focused) are related to internalizing in adolescence. In general, evidence linking emotion-focused coping to internalizing is fairly consistent (Compas et al., 2001; Fields & Prinz, 1997). A recent review of coping research in children and adolescents found that every study examining emotion-focused coping found a positive association between higher use of emotion-focused coping and internalizing symptoms (Compas et al., 2001). These findings are consistent with studies that show depressed adults often employ more emotionally-directed strategies, such as emotional discharge or venting (Coyne, Aldwin, & Lazarus, 1981). However the evidence for problem-focused coping in adolescence is less clear. Some studies have linked problem-focused coping to internalizing (Compas, Malcarne, & Fondacaro, 1988; M. A. Hoffman, Levy-Shiff, Sohlberg, & Zarizki, 1991; Plancharel & Bolognini, 1995; Windle & Windle, 1996), whereas other studies have not (M. A. Hoffman et al., 1991; Plancharel & Bolognini, 1995).

More consistently linked dimensions of coping to symptoms of internalizing and depression have been those concerned with the *orientation* of coping efforts as opposed to their function; namely, those of engagement and disengagement coping (Fields & Prinz, 1997). Originally conceived of as a fight or flight stress response (Cannon, 1933; Gray, 1991), *engagement coping* entails responses oriented either toward the source of stress

[1] Examining internalizing syndromes as opposed to solely depression outcomes reflects both researchers' interest in adolescents' overall adjustment as well as the high rates of comorbidity observed for anxiety and depression in adolescence. Anxiety disorders commonly precede depressive disorders in adolescence (Kessler et al., 1996) and the co-occurrence of anxiety and depression can be considered the rule, rather than the exception (Compas et al., 1993). Some researchers even argue that anxiety and depression are indistinguishable in childhood and adolescence (Graber, 2004). Thus, findings regarding the role of coping in adolescent internalizing syndromes are informative, particularly for understanding how coping may play into etiological processes of depression.

or toward one's emotions or thoughts while *disengagement coping* entails responses oriented away from the stressor or one's emotions or thoughts[2] (Compas et al., 2001). Thus engagement coping includes coping strategies such as problem-solving, emotional expression, and support seeking whereas disengagement coping includes strategies like problem-avoidance and social withdrawal.

Unlike the preponderance of studies examining the association between emotion- and problem-focused coping and depression, research on engagement-disengagement coping has examined internalizing as well as depressive outcomes. However, the majority of research has linked adolescent coping to *symptoms* of depression, rather than clinical *disorders*. Although debate currently exists, evidence suggests that depression in adolescents is more dimensional in nature than categorical, with symptoms lying along a continuum of severity that only appear to be qualitatively different at the extreme end of the continuum (Compas et al., 1993). Because both symptoms as well as diagnostic categories are associated with significant impairment, both are important outcomes to examine (Graber, 2004). However, our current knowledge best reflects the relationship between engagement and disengagement dimensions of coping and depressive symptoms in adolescence.

Substantial evidence has established an association between higher levels of disengagement coping with higher levels of internalizing symptoms as well as higher levels of engagement coping with lower levels of internalizing symptoms in adolescence

[2] The engagement-disengagement dichotomy is conceptually similar to the approach-avoidance distinction as originally proposed by Roth and Cohen (1986). However, the engagement-disengagement distinction is broader, in that avoidance represents only one way in which an individual can disengage (Compas et al., 2001). Because the conceptual divergence of engagement-disengagement from approach-avoidance is somewhat negligible and empirical findings are consistent with one another, I will use the engagement-disengagement nomenclature to encompass both dichotomies in an effort to assemble a more cohesive picture of the coping landscape.

(Conner-Smith et al., 2000; Seiffge-Krenke & Klessinger, 2000; Thomsen, Compas, Colletti, & Stanger, 1999; Wadsworth & Compas, 2002). Of the two, disengagement coping has been more consistently linked to internalizing (Compas et al., 2001). Studies that have linked these dimensions of coping solely to depression outcomes have yielded similar results. Less engagement-oriented coping and more disengagement coping have been associated with sub-clinical (Herman-Stahl, Stemmler, & Petersen, 1995) as well as clinical levels of depression (Compas et al., 1993; Ebata & Moos, 1991; Seiffge-Krenke, 1993). Additionally, increases in disengagement coping and decreases in engagement coping have been prospectively linked to increases in depressive symptoms in middle adolescence (Seiffge-Krenke & Klessinger, 2000).

Although research has established relations between adolescents' greater use of disengagement and emotion-focused coping and limited use of engagement coping with the development of depressive phenomena, the strength of these relationships has been modest at best (Seiffge-Krenke, 2000). In addition, specific findings have varied by moderating factors (i.e. the controllability of the stressor at hand) and have yet to establish the specific mechanisms through which these dimensions of coping may or may not be adaptive psychologically (Fields & Prinz, 1997). Consequently, researchers have pressed forward in an effort to clarify this relationship in a couple of ways. One approach utilized by coping researchers has been to search for more salient dimensions underlying the structure of coping efforts in adolescence that may exhibit more precise links to depression. Yet another approach, partially descending from the depression literature, has been to examine how

specific forms of coping (rather than broad dimensions) may be implicated in adolescent depression.

The first approach is at the forefront of the coping field's current research agenda (Compas et al., 2001; Skinner et al., 2003). Indeed coping researchers have suggested that two-dimensional structures of coping are overly broad (i.e. engagement-disengagement dichotomy). Therefore they continue in their quest to validate new and improved overarching structures of adolescent coping. Consensus on the most appropriate structure of coping has not been reached and is beyond the scope of the current study. However, one potentially useful approach has been to incorporate both orientational and functional dimensions of coping behaviors into a multi-dimensional framework (Fields & Prinz, 1997). Several leading researchers have theoretically divided coping into the broad dimensions of engagement-disengagement coping that are then further divided into sub-dimensions of emotion-focused and problem-focused efforts (Fields & Prinz, 1997; Seiffge-Krenke, 2000). However, exploratory factor analyses of coping items conducted by these same researchers in subsequent studies have consistently found greater support for only three of these four hypothesized dimensions (Hampel & Petermann, 2005; Seiffge-Krenke, 1993, 2000). Specifically these studies found empirical support for two engagement dimensions of emotion-focused and problem-focused coping efforts and one overall disengagement dimension.

Further supporting this three-dimensional structure is a series of validation studies done on the Adolescent Responses to Stress Questionnaire (RSQ) developed by Jennifer Conner-Smith and her colleagues. Confirmatory factory analyses on three different samples of adolescents supported three very similar dimensions of coping under the broader

dimension of voluntary coping efforts[3] (Conner-Smith et al., 2000). Therefore, *problem-focused engagement* coping, *emotion-focused engagement* coping, and *disengagement* coping appear to have preliminary empirical support as salient dimensions of coping responses in adolescence.

A series of studies on the RSQ have examined how these three dimensions were related to internalizing symptomatology in adolescence. In general these studies found that problem-focused engagement and emotion-focused engagement coping were negatively related to internalizing symptoms whereas disengagement coping was positively related (Conner-Smith et al., 2000; Connor-Smith & Compas, 2002). These findings are consistent with previously outlined relationships between lower levels of engagement coping and higher levels of disengagement coping and depressive outcomes, but are inconsistent with a host of evidence linking higher levels of emotion-focused coping to depressive outcomes. In addition, the relationship between each of these dimensions and internalizing symptoms ranged greatly in strength (but not direction) depending on the sample in question, the type of stressor, and gender (Conner-Smith et al., 2000).

Such inconsistencies point to the major limitation of this approach in elucidating the role of coping in depression; namely that there is nothing universally adaptive about a specific dimension of coping (Skinner et al., 2003). Rather it is the manner in which coping dimensions are used within particular situations and contexts that should cumulatively give rise to or exacerbate depressive outcomes. Therefore, we would not expect consistent

[3] The three dimensions within the RSQ are termed *Primary Control Engagement Coping*, *Secondary Control Engagement Coping,* and *Disengagement Coping.* Primary control entails coping efforts intended to change the person-situation relation (much like problem-focused coping) and secondary control entails coping relinquishing control (much like emotion-focused coping). Thus they are conceptually similar, yet with a slightly different focus.

relationships between adolescents' tendencies to use a single dimension of coping across a variety of stressors and their depressive outcomes. Establishing relevant and salient structural dimensions of adolescent coping efforts is an integral first step in unpacking the complex role coping plays in the development of adolescent depression. However, merely establishing relevant structural dimensions cannot explain when, why, and how such coping dimensions lead to depressive outcomes. Therefore an important next step involves understanding how established dimensions of coping are theoretically linked to depression during adolescence.

Surprisingly, there is a paucity of theoretically guided research within the stress-coping field on how coping is related to the development of depression. The theoretical work that does exist has been outlined by researchers, mostly from the depression field, who have examined the role of specific types of coping in adolescent depression, namely withdrawal coping and rumination. *Withdrawal coping* is a form of disengagement coping that entails resignation or hopelessness in the face of stress. Withdrawal characterizes the coping of clinically depressed youth (Seiffge-Krenke, 1993) and has been prospectively linked to increases in depressive symptoms over adolescence (Seiffge-Krenke, 2000). Withdrawal coping is hypothesized to lead to depression in adolescence via the coping skills deficit model (Asarnow, Carlson, & Gutherie, 1987). This model purports that adolescents who have a deficit in problem-solving coping skills are less able to effectively cope with stressors and thus are more likely to develop behavioral and emotional symptoms. However empirical evidence has not directly supported this claim. Asarnow and colleagues themselves found no differences in depressed and non-depressed children's abilities to generate problem-solving coping skills (Asarnow et al., 1987). More precisely, it appears that depressed adolescents may have adequate coping repertoires but simply do not enact problem-solving efforts in

favor of more disengaged and withdrawal coping (Herman-Stahl & Petersen, 1996; Seiffge-Krenke, 1993, 1998, 2000). Consequently, examining the development of adolescent coping responses characterized by high levels of withdrawal or disengagement and low levels of problem-solving are certainly important areas of future inquiry. However the specific mechanisms through which withdrawal coping leads to increases in depressive symptoms have yet to be tested.

Conversely, eloquent theoretical and empirical work on rumination has examined the *mechanisms* through which rumination leads to depression in both adolescents and adults. *Rumination* is conceived as "a pattern of behaviors and thoughts that focus the individual's attention on his or her emotional state and inhibit any actions that might distract the individual from his or her mood" (Nolen-Hoeksema, 1991, p.569). Typically used to explain why females may be particularly vulnerable to depression during adolescence and onward, rumination has been the subject of a plethora of studies in both the coping and depression fields. Rumination has been linked both concurrently and prospectively to depression in adult women (Nolen-Hoeksema & Girgus, 1994) and adolescents (Nolen-Hoeksema, 1998) and has been found to mediate the relationship between stress and adolescent depression in at least one study (Grant et al., 2004).

Nolen-Hoeksema and her colleagues have proposed and tested eloquent theory regarding the mechanisms through which rumination may lead to depression. They used both laboratory and naturalistic studies to demonstrate that rumination prolongs depressed mood and symptoms through at least three mechanisms. Specifically, such continued focus on negative affect prolongs depressed mood by increasing the likelihood of depressive interpretations of events, interfering with interpersonal problem-solving efforts, and

inhibiting individuals from engaging in everyday activities that would enhance their sense of control and lift mood (Nolen-Hoeksema, Larson, & Grayson, 1999). Rumination has also been shown to exacerbate depression by augmenting accessibility and recall of negative events and emotions (Hankin & Abramson, 2001). Therefore, it appears that rumination prolongs depressed affect through multiple mechanisms (i.e. interfering with problem-solving efforts) that over time cumulatively increase depressive symptoms.

These findings support rumination as a particularly important response pattern to continue to examine in adolescents. However, it remains unclear whether rumination can be classified within the construct of coping. Indeed, rumination is conceived by many as a *cognitive or attributional style* that is implicated in coping efforts but does not, by itself, constitute a way of coping (Graber, 2004). When rumination has been classified as a coping response, it has had difficulty finding a home in established structures of coping. Rumination is sometimes included under the dimension of involuntary engagement coping (Compas et al., 2001; Conner-Smith et al., 2000), sometimes included as part of emotion-focused coping (Broderick & Korteland, 2002), and yet other times included under "maladaptive" coping (that is conceptually consistent with disengagement coping) (Hampel & Petermann, 2005). Thus it remains unclear if or how rumination fits into existing dimensions of coping.

In addition, leading models of depression categorize rumination as a cognitive vulnerability that can lead to increases in depressive symptoms *after* initial negative affect or symptoms are experienced (Hankin & Abramson, 2001). Nolen-Hoeksema asserts that a rumination response is only detrimental in the context of depressed mood (Nolen-Hoeksema & Girgus, 1994). Consequently, some of the most convincing studies on rumination, including most of Nolen-Hoeksema's work, have examined ruminative responses to

depressed mood, not to stress per se. Because rumination has mostly been examined as a response to depressed mood, this blurs the conceptual clarity of rumination as distinct from depression itself. This lack of conceptual clarity may account for some of the robust relationships we see between rumination and depressive outcomes.

Notably, this underscores the need to examine how ruminative tendencies result from and/or influence patterns of coping explicitly within a stress-coping framework. Studies are needed in which ruminative response patterns to specific stressors and events, not only depressed mood, are examined. Investigating whether such a continued focus on internal states operates to prolong depressed mood and symptoms through similar cumulative mechanisms in response to stressful events (as opposed to solely depressed affect) might provide a window into the developmental precursors of ruminative tendencies as conceptualized within the depression literature. For example, the extent to which adolescents engage in more emotion-focused ways of coping at the expense of problem-focused ways of coping in response to salient stressors may at first prolong general negative emotional states, but this may eventually exacerbate more specific feelings of sadness and helplessness through similar proposed mechanisms (i.e., inhibiting individuals from engaging in everyday activities which decreases sense of control). Investigating the development of both ruminative tendencies and patterns of coping in response to stress is needed in order to understand the conceptual overlap between rumination and coping behaviors and their individual influences on the development of depression in adolescence.

In summary, the coping field has made strides in establishing salient dimensions of adolescent coping responses. Recent empirical evidence from a number of researchers supports the dimensions of problem-focused engagement, emotion-focused engagement, and

disengagement coping as particularly promising structural elements of adolescent coping responses. However, theoretical rationale for how these dimensions might be linked to the development of adolescent depressive symptoms has yet to be examined. In contrast, research descending from the depression literature (primarily on rumination) has eloquently outlined and tested proximal mechanisms through which this cognitive tendency prolongs depressed affect and thus leads to increases in depressive symptoms. Yet this work has not examined rumination explicitly within a stress-coping framework. Consequently research is needed to examine analogous unfolding coping responses to salient stressors during adolescence using established dimensions of coping.

Neglected Aspects of Adolescent Coping Processes

Despite this need, current approaches for examining adolescent coping are not concerned with examining proximal mechanisms or how particular coping *processes* might unfold in response to specific stressors. Current approaches to studying adolescent coping stand in stark contrast to predominant conceptualizations of stress and coping that emphasize dynamic transactions within the stress-coping process. As such, these approaches generally fail to articulate how or why coping behaviors should be related to depression in adolescents. As a result, many important conceptual and theoretical aspects of adolescent coping processes have been largely neglected. At least three aspects of coping come to the forefront as conceptually neglected yet theoretically important to our understanding of adolescent depression. These include: (1) emotional regulatory aspects of adolescent coping, (2) the relative use of different coping dimensions, and (3) the unfolding dynamics of coping behaviors.

Emotion Regulation. Emotional arousal and regulation are central to all conceptualizations of coping (Folkman & Moskowitz, 2004). In the original transactional model, coping efforts are posited to be in response to demands that are appraised as exceeding resources, otherwise termed stress. In fact, coping is not only in response to stress, but also has as one of its primary goals to manage this state of corresponding arousal. To the extent that coping is aimed at ameliorating these emotionally aroused states, it falls under the rubric of emotion regulation (Folkman & Moskowitz, 2004). Yet emotional arousal and regulatory aspects of coping processes are surprisingly neglected in current models of adolescent stress and coping.

In contrast, emotional regulatory processes are central to most models of children's coping (Compas et al., 2001). One of the most widely utilized models of coping in children stems from the work of Nancy Eisenberg and her colleagues who define coping as "self-regulation in contexts involving stress" (Eisenberg, Fabes, & Guthrie, 1997, p. 46). They assert that coping is motivated by the presence or expectation of emotional arousal such that the very act of coping is usually aimed at regulating the experience of emotion, the emotion-eliciting stressor, and one's own emotion-related behavior in response to the stressor (Losoya, Eisenberg, & Fabes, 1998). Whereas other important child and adult models outline slightly different structural components of the process (Compas, Conner, Osowiecki, & Welch, 1997; Roth & Cohen, 1986; Rothbaum, Weisz, & Snyder, 1982; Skinner & Wellborn, 1994), they all posit regulatory processes of emotional arousal as central to the coping process. Researchers concur that processes of emotion regulation are both central and important to adolescent coping and continue to develop in response to emotional demands and circumstances over this period (Zahn-Waxler, Klimes-Dougan, & Slattery, 2000).

Such emotional regulatory aspects of coping are even more important to examine with regards to adolescent depression because one of the hallmarks of depression is the dysregulation of mood and affect, particularly that of sadness and helplessness (Graber, 2004). Therefore, one of the central objectives of research trying to disentangle the coping-depression relationship should be to understand which dimensions of coping are effective at regulating distress and which ones are not in a given situation. Research on the effect of rumination eloquently illustrates that one of the ways this cognitive style is implicated in depression is by prolonging rather than down-regulating negative mood (Nolen-Hoeksema & Morrow, 1993). Analogously, the inability to down regulate an emotional arousal state in a given situation may be the most proximal mechanism through which various coping strategies cumulatively lead to more distal depressive outcomes. It follows that the extent to which salient dimensions of coping (e.g. emotion-focused engagement coping) are effective at reducing emotional arousal may be the most immediate indicator of adaptive coping efforts. Yet, to my knowledge, no research has examined this hypothesis. Exploring such a premise may clarify one immediate mechanism through which specific dimensions of coping may have more long-term links to depression in adolescence.

Relative Coping. Another neglected aspect of adolescent coping processes that deserves attention is the relative use of different ways of coping within a given situation. Relative coping compares the extent to which an individual uses one set of strategies or dimensions of coping compared to another either within a situation or more generally over time (Vitaliano, Maiuro, Russo, & Becker, 1987). It is clear that individuals do not use only one dimension of coping within a stressful situation. In Folkman and Lazarus' original study in which they assessed over a thousand coping episodes in adults, less than 2% of these

episodes involved the use of only emotion-focused or problem-focused coping (Folkman & Lazarus, 1980). Therefore, researchers have begun to emphasize the need to investigate the interplay of various coping responses as opposed to single dimensions of coping (Garnefski, Kraaij, & Spinhoven, 2001; Sandler, Wolchik, MacKinnon, Ayers, & Roosa, 1997). Yet, previous literature is based almost entirely on main effects of single coping dimensions on depressive outcomes. Therefore we have less knowledge of how the relative use of coping dimensions is relevant to depression.

Nonetheless, both theory and empirical evidence point to the importance of relative coping in adolescent depression. Specifically, the coping deficits model (Asarnow et al., 1987) as well as observations of the overly rigid withdrawal coping used by clinical samples (Seiffge-Krenke, 1993) suggest that more depressed adolescents have a coping style characterized by the greater use of disengaged coping relative to problem-focused coping. Thus it is the use of disengagement coping in the absence of more active engagement coping that appears to matter most. However, other research has shown that it is also important to examine the use of emotion-focused relative to problem-focused coping. Specifically, a handful of researchers have used cluster analysis or empirically-derived groupings to establish particular *profiles* of individual coping repertoires. It appears that profiles in which adolescents use emotion-focused coping at the expense of other dimensions or in which they use very little coping from all dimensions are concurrently associated with internalizing symptoms (Tolan, Gorman-Smith, Henry, Kyu-suk, & Hunt, 2002) and withdrawn behavior (Bowker, Bukowski, Hymel, & Sippola, 2000).

Thus evidence provides preliminary support for the importance of the relative use of emotion-focused and disengagement coping to problem-focused coping for adolescent

depression. However the relative use of these salient dimensions of coping in response to specific stressors in adolescence has yet to be examined. Given what we currently know, it seems plausible that a problematic constellation of coping behaviors may occur when adolescents employ higher levels of emotion-focused engagement *and* disengagement coping relative to lower levels of problem-focused engagement coping. Such a combination of coping efforts may indicate that an individual has essentially "given up" on trying to problem-solve yet is simultaneously still dealing with the emotional ramifications of the situation. Employing higher levels of disengagement coping and emotion-focused engagement coping in tandem may be particularly debilitating because it indicates that an adolescent is attempting to disengage from the stressful experience while also continuing to focus on their emotional states. Focusing on these emotions while behaviorally disengaging from the stressful situation at hand may only increase the salience of arousal and interfere with problem-solving efforts. Such a preoccupied coping response would be consistent with and may reflect rumination in which an excessive focus on negative affect interferes with the use of more problem-focused efforts (Nolen-Hoeksema, 1998). Consequently, an adolescents' greater use of emotion-focused engagement and disengagement coping relative to their use of problem-focused engagement coping may be a particularly powerful, yet unexplored, pattern of coping impacting depression.

Temporal Dimensions. Finally, examination of temporal dimensions of coping processes have been almost entirely ignored. This is particularly surprising given that the dynamic unfolding nature of the coping process is probably one of the few aspects of coping that is universally agreed upon. Folkman and Lazaurus themselves posit that coping is a shifting process in which a person must at various times rely more heavily on one form of

coping than others as the status of the situation changes (Folkman & Lazarus, 1980). Findings from their study with adults indicate that individual patterns of coping were characterized more by variability than consistency (as measured by proportions of coping styles). At the end of their article they lament that they were unable to capture the ways coping changed throughout the encounter and assert, "Until the dynamic quality of coping is described, our assessment procedures will remain incomplete" (Folkman & Lazarus, 1980, p.236).

Yet knowledge of intra-individual patterns of coping that unfold in response to stressful events in adolescence remains scarce. What knowledge we do have about intra-individual variability comes from the pioneering work of Inge Seiffge-Krenke and her colleagues who have used methods such as event sampling and an in-depth coping process interview to measure the dynamics of adolescents' coping across various situations over time (Seiffge-Krenke, 1995). Anecdotal evidence from her studies suggests that individuals' coping patterns as calculated by concordance coefficients are not characterized by stability across stressful situations or across time within a situation. However these studies used small sample sizes (N=11) and focused mostly on describing intra-individual variability in coping across different stressors rather than across time within the same stressor. Consequently, the extent to which adolescents' unfolding patterns of coping with specific stressors are related to depressive outcomes has yet to be evaluated.

Unfolding behavioral patterns in adolescent coping responses are especially important to examine for several reasons beyond mere conceptual consistency and preliminary evidence that such variability exists. First, examining unfolding transactions among or within levels of behavior may provide insight into how aspects of stress and coping responses

impact each other. For example, the degree to which coping efforts reduce affective arousal may impact later use of other coping efforts. Conversely, the degree of affective arousal may predict the use of subsequent coping strategies. Second, behavioral patterns allow us to move beyond personality variables of how people tend to respond across situations and examine contextual influences that shape and govern the development of coping processes across adolescence. Third, understanding the specific combination of strategies or pattern of responses that are effective for dealing with certain types of stressors may provide essential information about specific points of intervention in the coping process.

Certainly multiple patterns of unfolding coping behaviors may be linked to adolescent depression. However, based on the previously outlined rationale, a particularly problematic pattern could emerge such that an adolescents' use of emotion-focused engagement and disengagement coping together, soon after a stressor occurs, may interfere with the use of subsequent problem-focused engagement coping. Such an unfolding pattern would be consistent with studies in which rumination prolonged depressed mood specifically by interfering with problem-solving efforts for depressed individuals (Lyubomirsky & Nolen-Hoeksema, 1993; Morrow & Nolen-Hoeksema, 1990; Nolen-Hoeksema, 1991). However, the immediate use of disengagement and emotion-focused engagement coping does not necessarily signify a problematic pattern of coping. Rather initial use of such strategies may provide temporary relief from arousal if a context is not suitable to engage in more problem-focused efforts. This initial use of disengagement and emotion-focused engagement coping may also be supplemented over time with more active problem-focused engagement coping. Consequently an adolescents' use of higher levels of emotion-focused engagement and disengagement coping relative to problem-focused engagement at the beginning of the

coping process would not necessarily predict depression. Rather, *stable, high* use of both emotion-focused engagement and disengagement coping relative to problem-focused engagement coping across the process may have a particularly strong relationship with depression, because it may represent a more automatic ruminative coping response. In addition, *increases* in this combination of ways of coping may also be related to depression because such a trajectory may indicate a developing pattern of ruminative coping responses that is not yet as strongly entrenched. Thus it may also be when, and not simply whether, coping is employed during the process that may be informative.

In sum, three important questions regarding neglected aspects of adolescent coping processes as they relate to depression have yet to be explored. First, do coping behaviors exert their effect on depression in part through their ability to reduce emotional arousal in given stressful situations? Second, does the combination or relative use of coping strategies offer meaningful prediction to adolescent depression? And third, do specific trajectories of coping or the timing of coping strategies within the coping process matter for depressive outcomes? Such pertinent questions related to these aspects of the adolescent coping process have not been answered in large part because traditional measures of adolescent coping have yet to tap these salient components. Therefore issues of measurement are important to address.

Measurement Issues

The most widely used methods of assessing adolescent coping are retrospective self-report questionnaires (Compas et al., 2001). Most of these questionnaires ask adolescents to think about times when they generally feel stressed and then to check the degree to which they use a variety of coping strategies to deal with stressful situations. Consequently these

questionnaires attempt to capture adolescents' dispositional tendencies to cope with a range of stressful events in their lives. Such questionnaires are easy to administer and may capture an individual's broad-based tendencies to cope. However, the drawbacks of this method far outweigh the advantages for most of the questions the field is now poised to answer.

First and foremost, these commonly used questionnaires mask temporal dimensions of coping that are more consistent with theoretical accounts of coping. Stress-coping processes in adolescence have long been conceptualized as transactional progressions in which subjective appraisals of a specific event, co-occurring emotional arousal, and subsequent coping *strategies* unfold over time (Somerfield & McCrae, 2000). Yet the vast majority of coping measures mask these important aspects 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. Consequently there is an inherent mismatch between theoretical models and most current measures of adolescent coping (Tennen, Affleck, Armeli, & Carney, 2000). In addition, preliminary evidence suggests that adolescents' unfolding coping responses are characterized by intra-individual variability (Seiffge-Krenke, 1995). Therefore methods that more easily capture the dynamics of the process of coping as they unfold are needed to advance the field of coping research (Skinner et al., 2003; Tennen et al., 2000).

Another drawback of these types of global measures is that they lack situational and stressor specificity. We know that people adapt their relative use of coping dimensions depending on the type of stressor they encounter (e.g. academic-related or peer-related) and that the effectiveness of a particular way of coping depends on the characteristics of the situation (Folkman & Lazarus, 1980; Seiffge-Krenke, 1995). Consequently asking

adolescents how they generally cope across all stressors masks important stressor and situational differences in coping. Coping measures that present adolescents with specific situations and events are needed to better understand the contexts in which coping efforts are embedded and the sequencing of behaviors that unfold in response to specific stressors.

Finally, self-reported retrospective measures of coping are subject to multiple problems of recall bias. An individual's recollected experiences are distorted by implicit theories about one's own experience and cognitive heuristics (Pearson, Ross, & Dawes, 1992) as well as one's current emotional tone and the relevance of the stressor (Gilligan & Bower, 1985). Recall biases are particularly problematic when examining coping's association to depressive outcomes because research has shown that depressed individuals are more likely to recall negative aspects of an event or to make negative inferences about their behavior (Hammen & Zupman, 1984; K. B. Hoffman, Cole, Martin, Tram, & Seroczynski, 2000). Thus depressed individuals may infer they used ineffective coping strategies when this may not necessarily be the case. Such depressogenic biases can lead to an erroneous correspondence between disengagement or ruminative coping and distress (Todd, Tennen, Carney, Armeli, & Affleck, 2004). Overall, previous research assessing the association between repeated on-line accounts of coping with retrospective measures indicates only weak to modest correspondence between the two (Todd et al., 2004). These researchers assert that retrospective measures may be better at capturing between-persons components of coping, but do a poor job of capturing individual variability in coping responses within an event.

As a result, measures that capture online, unfolding, or sequencing of coping strategies in response to specific situations are needed to more accurately assess adolescent

coping processes and answer questions of interest for the current study. In order to capture coping processes measures must: (1) assess coping within the context of a specific stressful encounter, (2) capture what adolescents do in dealing with a stressor, and (3) make multiple assessments as the encounter unfolds in order to examine changes over time (Seiffge-Krenke, 1995). Methods we currently have to assess coping in such a manner include observational methods, experience sampling procedures, and hypothetical scenario-based interviews.

Observational methods are excellent for assessing micro-level responses in specific situations and eliminating self-report biases. However, because coping becomes more intra-psychic with age these methods have been used more often with young children and do not allow observation of more covert cognitive coping responses that emerge in adolescence (Compas et al., 2001). In addition, observing coping responses in a confined laboratory setting removes the natural context in which coping is implemented and thus limits ecological validity. Experience sampling procedures in which participants report on experiences in real life as they occur in their natural contexts provide much stronger ecological validity. However, these methods are extremely labor and resource intensive for researchers and participants. In addition, the researcher cannot control or assess the myriad of other stressful events and phenomena that may confound the coping process of interest. Therefore, scenario-based interviews may be a particularly promising method for capturing adolescent coping processes.

Hypothetical scenarios have been previously used to measure children's cognitive appraisals (Crick, 1995) with less bias and inaccuracy than retrospective reports of coping (Smith, Leffingwell, & Ptacek, 1999; Stone et al., 1998). Scenario-based methods are less demanding on researchers and participants than observational or event sampling techniques

and thus are a particularly practical method to assess unfolding coping processes in adolescence. To some degree, hypothetical scenario methods provide the strengths of both observational and event sampling designs: allowing participants to respond to a controlled stimulus, but with greater ecological relevance because the hypothetical nature allows them to impose upon the same scenario their own perceptions and experiences. In addition, hypothetical scenarios combined with semi-structured interviews are particularly well-suited to provide a richer understanding of the context in which coping takes place, the sequence in which coping responses are executed, and the ways in which different coping responses are combined (Compas et al., 2001). Finally, hypothetical scenarios allow researchers to capture unfolding coping responses to specific types of stressors and events. Thus, the current study will use a hypothetical scenario-based interview to capture adolescents unfolding responses to a specific, yet salient stressor.

Interpersonal Stressors

Understanding how adolescents respond to specific types of stress (i.e. interpersonal versus achievement-related) is ultimately important in elucidating relationships among coping patterns, particular types of stress, and depressive outcomes. Specificity designs utilized in developmental psychopathology offer one useful approach to elucidating such complex relationships. Specificity designs are concerned with establishing connections between specific stressors, particular moderators, and particular outcomes (McMahon et al., 2003). These designs are particularly helpful in clarifying the differential role coping plays in the onset and maintenance of specific psychological disorders. Thus it may be most important to examine adolescent coping responses to stressors with established links to depression in adolescence.

The type of stress that has been consistently linked to depression in adolescence is that of interpersonal stress (Compas et al., 1988; Rudolph, 2002). Interpersonal stressors occur within the context of close relationships, typically involving conflicts with friends and family (Rudolph, 2002). Such stressors are consistently rated as some of the most salient and common stressors adolescence experience, particularly for females (Seiffge-Krenke, 1995) and have been more closely associated with depression than other common types of stressors (Zahn-Waxler et al., 2000). Within interpersonal stressors, peer-related stressors are the most commonly reported (Williams & McGillicuddy-De Lisi, 2000) and have been consistently linked to depression in both males and females (Rudolph, 2002). Consequently, understanding adolescence responses to peer-related stressors may be particularly informative of coping processes linked to the development of depression.

The Current Study

The overall aim of the current study is to examine how unexplored yet theoretically relevant aspects of coping processes are related to symptoms of depression in adolescence. Specifically, the current study aims to examine: (a) whether one of the proximal mechanisms through which coping efforts are related to depression is reducing emotional arousal, (b) how an adolescent's use of emotion-focused engagement and disengagement coping relative to problem-focused engagement coping in response to a salient stressor is related to depression, and (c) whether an adolescents' high, stable and/or increasing use of such relative coping across the process is also related to depression. The current study will focus specifically on a peer-related stressor because of the prominence of such events in adolescents' lives and the established relationship between peer stress and depression in adolescence. In order to integrate findings into the larger coping literature, the established dimensions of emotion-

focused engagement, problem-focused engagement, and disengagement coping will be used to examine the following hypotheses. (These hypotheses are also provided in Table 1).

Hypothesis 1-3 will examine whether an adolescents' use of problem-focused engagement, emotion-focused engagement, and disengagement coping in response to a peer-related stressor is related to depression through each dimension's ability to reduce emotional arousal associated with the stressor. Because reduced emotional arousal is only one mechanism through which dimensions of coping should be linked to depression, it is predicted that reductions in emotional arousal should only partially mediate this relationship. Based on the previously reported relationship of each of these dimensions of coping to depression (Compas et al., 2001; Conner-Smith et al., 2000; Seiffge-Krenke & Klessinger, 2000), the following three hypotheses are purported: the higher use of problem-focused engagement coping will predict lower levels of depression, both directly and indirectly through reductions in emotional arousal (*Hypothesis 1*), the higher use of emotion-focused engagement coping will predict lower levels of depression, both directly and indirectly through reductions in emotional arousal (*Hypothesis 2*), and the higher use of disengagement coping will predict higher levels of depression, both directly and indirectly through reductions in emotional arousal more strongly than any of the three dimensions alone (*Hypothesis 3*).

Hypothesis 4 will examine whether an adolescents' use of emotion-focused engagement and disengagement coping relative to problem-focused engagement coping in response to peer-related stress is related to depression. Because this combination of strategies most parallels processes of rumination, it is hypothesized that greater use of emotion-focused

engagement and disengagement coping relative to the use of problem-focused engagement coping will predict higher levels of depression.

Hypothesis 5 will examine whether particular trajectories of emotion-focused engagement and disengagement coping relative to problem focused coping across the process are related to depression. It is hypothesized that stable, high levels of emotion-focused engagement and disengagement coping relative to problem-focused engagement coping will be related to depression. Such a stable trajectory might indicate that ruminative-like coping comes on-line early in the process. However, it is also hypothesized that a trajectory characterized by increases in this relative use of coping dimensions will predict depression (but not as strongly). Increases in this type of coping may indicate a developing pattern of a ruminative response set. No other trajectories of this relative use of coping strategies are predicted to relate to adolescent depression in the current study.

To test the above hypotheses, I will use a hypothetical scenario-based interview measure that my colleagues and I developed to tap these aspects of the coping process. The current study will examine these hypotheses after the freshman year in high school; a unique developmental period in which to examine how adolescents cope with peer-related stressors and the relationship that may have to depression. Specifically, the transition to high school coincides with the ages at which rates of depression escalate, particularly in adolescent girls (Cryanowski, Frank, Young, & Shear, 2000). In addition, school transitions increase the likelihood of disruptions in friendship networks and the occurrence of peer-related stressors (Brown, 2004). Consequently, the manner in which adolescents cope with peer stressors over this transition period may be particularly likely to relate to depression.

Additionally, the current study will use a design similar to that used in yoked-design in experimental studies in hopes of reducing extraneous variability among participants and increasing the power to detect the specific effects of coping on depression. Therefore, the current study will examine unfolding coping responses and depressive symptoms in a sample of adolescents and their close friends. Evidence suggests that adolescents hang out with friends who are more similar to themselves on levels of internalizing (Hogue & Steinberg, 1995). Thus, it is expected that friends who hang out together should be more similar on both depression and coping. Because close friends should be more similar to each other on both coping behaviors and levels of depression, such a study design may allow effects of coping to stand out from background error variance, thus reducing variability and enhancing the ability to detect coping effects.

CHAPTER 2

METHOD

Study Overview

The current study uses data collected through the High School Transition Study (HSTS), a multi-stage, longitudinal study of adolescents, their parents and their friends (Hussong, 2000). The HSTS includes four phases of data collection (See Figure 1 for study design overview). In Phase I, 399 of 436 8th grade students in participating schools completed classroom administered surveys assessing a broad array of factors, including risk indicators for substance use in high school (i.e., initiation of alcohol use themselves or by their friends). For Phase II, participants were recruited during a time-limited period from the Phase I sample according to their rank-ordering of risk status (i.e., from high to low). (Because this stage required completion during the summer between 8th and 9th grade, we limited recruitment efforts to an eight-week period.) We attempted to contact 198 Phase I participants, with 81 agreeing to participate. Primary reasons for non-participation were inability to contact (n=33), ineligibility (n=20, language barrier, moving, did not pass grade), limited availability (n=17), and privacy concerns (n=11). Of 145 eligible, contacted families, 56% participated in Phase II. In Phase III, we conducted school-based assessments in 9th grade at two of three county high schools with 351 out of 434 enrolled students participating. Because 8th grade schools did not include all feeder schools for 9th grade schools (i.e., one 8th grade school attended the non-participating high school, one non-participating 8th grade school attended a participating high school), our Phase III sample included 273 of those

participating in the Phase I sample. In Phase IV, we conducted follow-up interviews with 56 participants from our Phase II sample (69% participation rate). Because the current study primarily uses data from Phase IV, only that phase and relevant aspects are discussed in detail below.

Participants

For Phase IV, we re-contacted participants from Phase II to complete similar intensive interviews during the summer after their ninth grade year. We were able to contact 90% of Phase II participants. Of those we reached, 22% refused to participate, mostly because they did not have the time to dedicate to the study. Therefore 56 of the 81 target adolescents and their families could be reached and agreed to participate in at least one of Phase IV interviews. Fifty of the 81 target adolescents agreed to participate in both the initial and final interviews of Phase IV. During their initial Phase IV interview, these 50 adolescents nominated a close friend to participate in the final interview of this phase of data collection.

Participants for the current study include all target adolescents and their close friends who completed relevant measures during the final interview of Phase IV. Because we did not restrict whom targets could nominate as their close friend, seven target adolescents also participated as close friends, one close friend participated twice (for different target adolescents), and six target adolescents did not have a friend participate. Thus, unique participants include the 49 target adolescents and 35 close friends who completed relevant measures during the final interview of Phase IV[4]. Target adolescents and their friends did not significantly differ from each other in age, gender, race, parent education, depression,

[4] Although the current study initially included 88 participants, preliminary outlier analyses revealed four cases that were influential and thus are not included in the final sample described here. These diagnostics are explained in greater detail in the *Results* section.

aggression, anxiety, or substance use (all $p > .10$).

Consequently, the final sample for the current study includes 84 adolescents from a predominantly rural school district (*mean age* = 14.8, 43% males). Seventy-five percent of participants' parents were college graduates; 64% identified as Caucasian, 20% African American, 12% Multi-Racial, 2% Hispanic, and 2% Native American. Participants for the current study do not differ in race, gender, depression, physical aggression, or substance use from participants in Phase III, the school based assessment three months prior (all $p > .10$). However, participants for the current study are significantly higher on parent education ($t(153) = 4.71$, $p < .001$) and anxiety ($t(111) = 2.79$, $p < .01$) and significantly lower on delinquency ($t(267) = -3.92$, $p < .001$) than Phase III participants. However compared to national norms, current participants appear to be higher on depressive symptoms and rates of substance use and physical aggression. Characteristics and adjustment indices for the current sample against the Phase III school-based sample and national norms for this age group can be seen in Table 2.

Design and Procedure

For Phase I, we invited all middle schools in a rural county in North Carolina to participate in the study. Principals from seven of the nine middle schools agreed to participate in the study. We mailed letters home to the parents of all enrolled middle school students describing the study and inviting adolescents to participate. A similar letter was sent home with the student through the school. Parents who did not want their adolescent to participate in the study were asked to mail an attached postcard back to our offices to decline their adolescents' participation. Only 3% of parents declined their son or daughter's participation in the study. A team of interviewers obtained informed consent and

administered surveys to students in the seven middle schools. Only six students chose not to participate in this survey-based data collection.

Subsequently we mailed letters to selected Phase I participants, based on risk status, describing Phase II and followed up with a phone call to these adolescents and their parents. For families who expressed interest, summer interviews and procedures were described to adolescents and at least one parent. Families were not excluded from participation based on gender, ethnicity, or socioeconomic status, although we were only able to interview families in which the adolescent and at least one parent spoke English at a level adequate to complete consenting and interview procedures (N = 1 excluded). Following Phase II, we maintained contact with these 81 participants and their families through various mailings and reports of findings from the study. We then re-contacted them via similar procedures to participate in Phase IV interviews during the summer after their ninth grade year. However, this time we allowed adolescents to participate even if their parents declined to participate or if they only wanted to participate in one of the two Phase IV interviews.

During Phase IV, target adolescents completed a three-week protocol including an initial interview, a three-week experience sampling protocol, and a final interview. Target adolescents' close friends participated in the final interview. During the initial interview of Phase IV, participating adolescents were asked to nominate and give consent to contact one of their four closest friends (in order of closeness). Starting with their closest friend, research staff mailed an introductory letter, signed by the target, to his or her friend's home. Staff then conducted a follow-up phone call and obtained verbal assent and consent. If the friend did not express interest, staff moved on to the next friend on the nomination form.

For both of these interviews, two trained research assistants drove to participants' homes or greeted them at a university location. Research assistants obtained written parental consent and student assent from all participants. In the second interview, researchers interviewed targets and close friends (when present) simultaneously, but in separate rooms using a white noise machine for privacy[5]. Both targets and their friends completed a battery of measures with the interviewer reading aloud questions and responses while participants entered their answers confidentially. The larger battery of interviews contained standardized measures of adolescent adjustment indices (i.e. substance use, depression) as well as measures of family and peer functioning (i.e., parental control, friendship balance). The scenario-based coping interview was completed via laptop computer and strategically placed after the stress measure to "prime" participant arousal. Other survey measures were completed by a computer-assisted interview for targets and by paper and pencil measures (again read aloud to participants) for their friends.

All participants completed relevant measures only once during Phase IV. Therefore, if they had already completed a measure as a friend or target in a previous interview, this measure was subsequently omitted in all future interviews. Target adolescents completed self-report measures of demographic characteristics and depression during their initial interview whereas their closest friends completed these same measures three weeks later during the final interview. All survey materials were marked with a study identification number and no other identifying information. Additionally, a Certificate of Confidentiality

[5] To examine if the impact of having a friend present at data collection affected performance on ACPI, the six participants who completed measures without a friend present were compared to the 78 who completed measures with a friend in other room. Participants who did not bring a friend did not differ from those participating with a friend present on initial emotional arousal, any of the ACPI coping scales, or depression (all $p > .10$).

was obtained from the U.S. Department of Health and Human Services to protect participant confidentiality. All participants completed the coping measure during the final interview. Participants were paid $20 for each interview in which they participated.

Measures

Because multiple constructs of interest to the current study have yet to be tapped by established measures of adolescent coping, my colleagues and I developed the Adolescent Coping Process Interview (ACPI). A written copy of the ACPI can be found in Appendix A. A general description of the ACPI as well as preliminary findings on its psychometric properties follows.

The Adolescent Coping Process Interview (ACPI)

The Adolescent Coping Process Interview (ACPI) was developed to measure the series of coping strategies and co-occurring negative emotional arousal that adolescents employ and experience when coping with a specific event. The ACPI uses a format that is less demanding on researchers and participants than observational or event sampling techniques. The ACPI follows a hypothetical peer rejection video-vignette and semi-structured interview format that is administered via laptop computer. We selected a peer rejection scenario to provide a salient stressor to tap more general coping processes in adolescents because peer-related stressors are the most commonly rated type of daily hassle in adolescence (Williams & McGillicuddy-De Lisi, 2000). In addition, when asked to freely report on recent peer-related stressors, adolescents report peer-rejection as the most common type of stressor, accounting for over half of all reported peer-related stressors (Bowker et al., 2000).

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 found to affect written vignette formats (Chen & Matthews, 2003; Crick, 1995). Adolescents are also likely to report more accurate information on computer-based instruments than paper and pencil measures (Supple, Aquilino, & Wright, 1999). Finally, 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 ways of coping within the Lazarus and Folkman framework.

When completing the ACPI, participants watch a video simulating peer rejection (i.e., being "mocked" at a party to which they were not invited) that occurs during a hypothetical lunch period at school. Adolescents are instructed to pretend that they are experiencing the same event and to report how they would feel and deal with the same problem if it were happening to them over the course of three time sequences spanning the week after the hypothetical event occurs (i.e., within the lunch period, throughout the rest of the day, and over the course of the following week). Video clips of common daily events (i.e., changing classes and doing homework) are shown in between each sequence to simulate elapsed time throughout the rest of the day and week. The video clips are from the perspective of the participant (acting as a "virtual reality" experience) and therefore the ACPI does not assume any demographic characteristics of the participant. Actors shown in the video are of mixed gender and race and no pronouns are used throughout any of the clips. A visual representation of the ACPI can be seen in Figure 2.

The ACPI captures negative emotional arousal and coping strategies over three hypothetical time sequences: (1) immediately after the stressor occurs and throughout the lunch period (termed the "initial" time sequence), (2) within the same day as the stressor (termed the "short-term" time sequence), and (3) throughout the following week (termed the "long-term" time sequence). Four types of negative emotional arousal (i.e., stress, anger, sadness, and anxiety) are assessed immediately after the initial event is experienced and at the end of each time sequence. Within each time sequence, participants indicate the likelihood of selecting each of the 11 coping strategies that reflect the most commonly assessed ways of coping in the field (Bowker et al., 2000; Carver et al., 1989; Compas et al., 2001; Patterson & McCubbin, 1987). In addition, within each sequence an open-ended response option assesses 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 are asked to rate how well they dealt with the problem overall. A 5-point scale ranging from (1) not at all to (5) extremely is used for all items except the open-ended responses.

Psychometric Properties of the ACPI

Preliminary psychometric properties of the ACPI have been examined previously (Feagans, Hussong, & Keeley, 2005). In these analyses we created coping subscales that are conceptually similar to typically measured coping *styles* by taking the mean of all 3 items (one from each sequence) for each of the 11 ways of coping. Coping subscales generally displayed good internal consistency (with the exception of *passive avoidance*) (see Table 3) as well as good convergent relevant to divergent validity (see Table 4). We assessed convergent validity by examining the correlation of each subscale with the most theoretically similar scale on a widely used measure of coping style, the Adolescent Coping Orientation

for Problem Experiences (A-COPE) (Patterson & McCubbin, 1987). Divergent validity was assessed by examining correlations with social desirability, a general reporting style more indicative of personality characteristics, as measured by nine items on the lie scale of the Revised Children's Manifest Anxiety Scale (RCMAS) (Reynolds & Richmond, 1978). As expected, most convergent correlations were moderate in magnitude (r =.25-.61). 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 <.05).

For the current study, relevant ways of coping were grouped into the theoretical dimensions of problem-focused engagement, emotion-focused engagement, and disengagement coping. Coping scales were then created for each of these three dimensions to represent two different ways to conceptualize coping. The first way represented participants' *coping styles*, or their use of a particular dimension of coping across the entire process. Consequently, the coping style scale for a particular dimension was formed by taking the mean of all relevant items within that dimension of coping across all three sequences. The second way represented participants' use of a *coping strategy,* or their use of a dimension of coping during a particular sequence within the process. Thus, coping strategy scales were formed by taking the mean of relevant items within each sequence (i.e., "initial" coping, "short-term" coping, and "long-term" coping).

Emotion-focused Engagement Coping (EF Coping). Two ways of coping (emotional support seeking and venting) assessed the degree to which adolescents were actively engaged in dealing with the stressor and in managing emotional arousal. Adolescents rated how likely they were on a scale from (1) not at all to (5) extremely to employ these ways of coping

during the relevant time sequence. The style scale for this dimension was composed of 6 items (M = 2.63, SD = 0.99) and showed good internal consistency (α = .85). The strategy scales were comprised of the 2 relevant items for this dimension within each sequence resulting in an "initial" (M = 2.35, SD = 1.08), "short-term" (M = 2.92, SD = 1.13), and "long-term" strategy scale (M = 2.64, SD = 1.17). These scales displayed adequate internal consistency for 2-item scales (ranging from α = .59 to α = .70).

Problem-focused Engagement Coping (PF Coping). Four ways of coping (problem-solving, confrontation, instrumental support, and self-improvement) assessed the degree to which adolescents actively engaged in dealing with the stressor and tried acting upon the source of stress. Adolescents rated how likely they were on a scale from (1) not at all to (5) extremely to employ these ways of coping during the relevant time sequence. The style scale for this dimension was composed of 12 items (M = 2.57, SD = 0.86) and shows good internal consistency (α = .90). The "initial" (M = 2.59, SD = 0.83), "short-term" (M = 2.64, SD = 0.98), and "long-term" (M = 2.49, SD = 1.04) coping strategy scales were each comprised of the 4 relevant items for this dimension. These scales displayed adequate (α = .62 for "initial") to strong (α = .83 for short- and "long-term") internal consistency.

Disengagement Coping. Two ways of coping (passive avoidance and acceptance) assessed the degree to which adolescents were oriented away from either the stressor at hand or their feelings of arousal associated with the stressful experience. Adolescents rated how likely they were on a scale from (1) not at all to (5) extremely to employ these ways of coping during the relevant time sequence. The *style* scale for this dimension was composed of 6 items (M = 2.77, SD = 0.85) and showed adequate internal consistency (α = .77). The "initial" (M = 2.88, SD = 0.99), "short-term" (M = 2.67, SD = 0.99), and "long-term" (M =

2.76, SD = 1.07) coping strategy scales were each comprised of the 2 items. These scales displayed reliability estimates ranging from $\alpha = .44$ to $\alpha = .58$. [6]

Emotional Arousal. Three items assessed the degree of negative emotional arousal adolescents experienced at four different points in the coping process. Adolescents rated how likely they were on a scale from (1) not at all to (5) extremely to feel stressed, worried, or sad immediately after they experienced hypothetical peer rejection ("initially"), at the end of the lunch period ("subsequent"), at the end of the day ("short-term") and at the end of the week ("long-term"). Means and standard deviation for scales were as follows: "initial" arousal (M = 2.75, SD = 1.03), "subsequent" arousal (M = 2.56, SD = 1.03), "short-term" arousal (M = 2.38, SD = 1.07), and "long-term" arousal (M = 1.66, SD = 0.81). Internal consistency for negative emotional arousal scales at each time point were good to excellent, ranging from $\alpha = .87$ to $\alpha = .89$.

Depression. Thirteen items from the Short Mood Feelings Questionnaire-Child (SMFQ-C) (Angold et al., 1999) were administered to participants to indicate their level of depression in the past three months. Adolescents indicated the extent to which depressed mood or feelings were (2) true, (1) sometimes true, or (0) not true of them in the past three months. Previous research has established strong reliability ($\alpha = .85$) for the SMFQ-C as well as moderately high correlations with both the Child Depression Inventory (CDI) (r = .67) and the Diagnostic Interview Schedule for Children (DISC-C) (r = .65). For the current study, a mean of all response items will be used (M = .45, SD = .38). Reliability for this scale is excellent *(*$\alpha = .89$). A copy of the SMFQ-C can be found in Appendix B.

[6] These reliability estimates while weak are not surprising given weak reliabilities of similar scales on standardized measures of coping styles.

Demographics. Parent education was assessed by taking the maximum of adolescents' reports of their mother or father's level of education on a scale ranging from (0) less than a high school education to (4) some graduate or professional school. Race was self-identified by participants and coded as (0) Caucasian or (1) Ethnic Minority[7]. Gender was coded (0) for females and (1) for males.

[7] Although more differentiated racial categories were self-identified by participants, race was dichotomized into two categories because of limited power and small numbers within particular racial categories. Adolescents who identified as multi-racial were classified in the Ethnic Minority group.

CHAPTER 3

RESULTS

The following results address the three primary questions of interest for the current study. First, do coping behaviors exert their effect on depression in part through their ability to reduce emotional arousal in given stressful situations? Second, does the combination or relative use of coping strategies offer meaningful prediction to adolescent depression? And third, do specific trajectories of coping or the timing of coping strategies within the coping process matter for depressive outcomes? In this section, I outline the general analytic approach to examine all hypotheses, followed by more detailed descriptions of specified models and results for each hypothesis. Finally, I present a series of post-hoc analyses in which follow-up analyses were run to add insight into and examine possible competing explanations for key findings.

General Approach

Path analysis was used to examine the current set of hypotheses. A path analytic framework allowed for the simultaneous estimation of mediation (as posited in hypotheses 1-3) as well as consideration of non-independence of observations. Such non-independence was present in the data because, by design, adolescents were nested within close friendship groups, violating OLS regression assumptions of homoscedacticity and independence of errors. It was expected that adolescents would be more similar to their close friends on depression, hopefully reducing variability associated with random error and enhancing the ability to detect coping effects on depression. To understand the degree to which such nesting

existed, initial analyses in Hierarchical Linear Modeling (HLM) (Bryk & Raudenbush, 1992) revealed that significant variability in depression existed across individuals ($\delta^2 = .12$; $Z = 4.37$, $p < .0001$), and marginal variability in depression existed across close friend group ($\pi_{00} = .03$; $Z = 1.24$, $p < .11$). The intra-class correlation coefficient indicated that 17% of the variability in depression could be accounted for by variability in close friend group. Consequently, all models were estimated using the Mplus software package (L. K. Muthen & Muthen, 2004) with Maximum Likelihood and Robust Standard Errors (MLR) estimation procedures. MLR estimation uses the Taylor expansion of Huber-White sandwich estimator (B. O. Muthen & Satorra, 1995) to adjust standard errors and model fit statistics accordingly.

In all specified path models control variables of gender, race, and parent education were entered as exogenous covariates to understand coping's relationship to depression above and beyond these demographic constructs. Exogenous variables were allowed to covary in all models. Zero-order correlations and descriptive statistics for all variables can be seen in Table 5. Correlations were in the expected direction and ranged in magnitude from .01 - .79. Endogenous variables were normally distributed and no missing data was present. All path models were identified because all parameters in recursive path models are identified (Bollen, 1989, p. 98). In addition, the Delta method (Bollen, 1989) was used to calculate all indirect effects.

Regression diagnostics were performed to examine overall model fit because fit statistics are not available for fully saturated models and individual-level residuals cannot be obtained from Mplus. A series of OLS regression models were estimated in SAS 9.1 (SAS, 2001) for select models (i.e., two for each endogenous variable in the path model for hypothesis 1 and one for the path model for hypothesis 4). Indicators of influence via

DFBetas and DFFit statistics as well as visual scans of residual plots revealed four outliers with extreme scores on depression (all of which were over two SDs above the mean and two of which were perfect scores indicating all items were "true" of them in the past 3 months). Subsequent investigation of honesty ratings made by participants at the end of the study and self-reports of depression from previous time points indicated inconsistent or dishonest reporting and thus these observations were dropped from all analyses. Once these observations were dropped, the models explained from 5%-10% greater variance in depression scores. Error variance in models was significantly reduced, indicating that the specified models were more consistent with observed data.

To maximize confidence in findings given differing options for statistical modeling, multiple analytic strategies were used to test each hypothesis. Results are presented for each approach and comparisons across models are discussed. Because the current set of questions concern hypothesis testing, as opposed to overall prediction, more attention is paid to parameter estimates than overall variance explained. However, to gain a sense of the relative explanatory power of various ways of operationalizing coping, a baseline path model was initially estimated in which all control variables were entered as exogenous predictors of depression. Gender was the only significant predictor such that females were more likely to have higher depression ($\beta = -0.32$, $z = -3.19$). Together these demographic variables accounted for 12% of the variance in depression scores.

Do Coping Behaviors Exert Influence In-Part through Regulation of Emotional Arousal?

Two approaches were used for testing the first three hypotheses examining the mediating effect of change in emotional arousal on the relationship between coping and depression. The first approach was to specify path models using a raw change score to

operationalize change in emotional arousal. Thus, *change in emotional arousal* was calculated by subtracting "long-term" negative emotional arousal from "initial" negative emotional arousal and represented the extent to which emotional arousal rose or fell over the entire coping process. Change in emotional arousal ranged from –3.50 (indicating a 3.5 point decrease in arousal) to 1.5 (representing a 1.5 point increase in arousal) (M = -1.10, SD = .97). This change score was then entered as an endogenous indicator into each of three models separately to estimate the indirect effect for each of the three coping dimensions. The second approach specified path models using *residualized change scores*, that is partialling out each individual's initial level of emotional arousal and predicting subsequent emotional arousal as a mediator. As such, "initial" emotional arousal was entered as a covariate and "long-term" emotional arousal as an endogenous indicator in proposed models. (See Figure 3 for a depiction of residualized models)

Although debate currently exists as to which is the best way to test change between two time points (Curran, personal communication, January 17, 2006), the raw change score approach was chosen as the primary basis for interpretation and testing models examining the first three hypotheses when results of the two approaches were not in agreement. The raw change score approach was chosen because conceptually, it was more similar to hypothesized constructs. In addition, the small sample size, restricted range of a five-point scale, and the relative stability of initial and long-term emotional arousal (r =.75) made the residualized change approach overly conservative for the current study. Full results for both raw change score models and residualized change score models can be seen in Tables 6 & 7, respectively.

Hypothesis 1: PF Coping. The final model for the effect of PF coping on depression through reductions in emotional arousal can be seen in Figure 4. The final model accounted for 10% of the variance in reductions in emotional arousal and 18% of the variance in depression. Consistent with this hypothesis, greater PF coping was marginally associated with reductions in emotional arousal ($\beta = -0.25$, $Z = -1.91$). However, counter to prediction, PF coping was unrelated to depression ($\beta = -0.20$, $Z = -1.59$) once change in emotional arousal was controlled. In addition, change in emotional arousal was related to depression scores ($\beta = -0.24$, $Z = -2.46$), but in the opposite direction as hypothesized such that greater reduction in arousal over the coping process was actually related to higher depression scores. The indirect effect of PF coping on depression through reductions in emotional arousal did not reach significance ($\beta = 0.06$, $Z = 1.50$). The only other relationship of note was the direct effect of gender on depression such that females were more likely to be depressed ($\beta = -0.35$, $Z = -2.81$).

In the path analysis using the residualized change approach, the model accounted for 24% of the variance in long-term emotional arousal and 19% of the variance in depression. As expected, higher levels of "initial" emotional arousal were strongly related to higher levels of "long-term" emotional arousal ($\beta = 0.37$, $Z = 3.15$) and depression ($\beta = 0.31$, $Z = 2.64$). Here, there was a marginal relationship between PF coping and depression ($\beta = -0.24$, $Z = -1.86$). Gender's association with depression remained significant ($\beta = -0.33$, $Z = -2.63$).

Consequently, it appears that greater use of PF coping is marginally related to reductions in emotional arousal, but unrelated to depression once this change in arousal is taken into account. However, when "initial" emotional arousal is partialled out, PF coping becomes marginally related to depression above and beyond demographics and "initial" and

"long-term" arousal. Taken together, the models indicate that PF coping functioned somewhat as expected within the coping process, such that an adolescent's greater use of PF coping in response to a peer-related stressor is associated with both higher levels of "initial" levels of arousal (r = .51) and reductions in arousal. However, PF coping does not function in relation to depression as hypothesized, either as a direct predictor of adolescent depression or an indirect predictor through its ability to modulate arousal across the coping process.

Hypothesis 2: EF Coping. The final model for the effect of EF coping on depression through reductions in emotional arousal can be seen in Figure 5. The final model accounted for 13% of the variance in reductions in emotional arousal and 15% of the variance in depression. As hypothesized, higher levels of EF coping were associated with reductions in emotional arousal (β = -0.35, Z = -3.20). However, counter to prediction, EF coping was unrelated to depression (β = 0.00, Z = 0.01). No other pathways in the model were significant. Thus, there was no indirect effect of EF coping on depression through reductions in emotional arousal (β = 0.07, Z = 1.48).

In the path analysis using the residualized change approach, the model accounted for 25% of the variance in long-term emotional arousal and 15% of the variance in depression. Higher levels of EF coping were marginally related to higher levels of "long-term" emotional arousal (β = 0.21, Z = 1.95), but were unrelated to depression (β = -0.01, Z = -0.06). Higher levels of "initial" emotional arousal were associated with higher levels of "long-term" emotional arousal (β = 0.30, Z = 2.56). However, "initial" emotional arousal in this model was unrelated to depression (β = 0.21, Z = 1.64).

Thus across both models, EF coping was associated with reductions in and higher levels of negative emotional arousal within the coping process. In fact EF coping and initial

arousal were correlated at r = .63. However, the degree to which an adolescent uses EF coping in response to a peer-related stressor had no relationship to depression when change in emotional arousal and demographic variables were taken into account.

Hypothesis 3: Disengagement Coping. The final model for the effect of disengagement coping on depression through reductions in emotional arousal can be in Figure 6. The final model accounted for 6% of the variance in reductions in emotional arousal and 24% of the variance in depression. Contrary to this hypothesis, higher levels of disengagement coping were not associated with reductions in emotional arousal (β = 0.06, *Z* = 0.55), although this relationship was in the expected direction. However, in accordance with prediction, greater disengagement coping was associated with higher levels of depression (β = 0.31, *Z* = 3.10). In addition, reductions in emotional arousal were related to higher depression scores (β = -0.21, *Z* = -2.40). Consequently, there was no indirect effect of disengagement coping through reductions in emotional arousal (β = -0.01, *Z* = -0.52). Females had greater changes in emotional arousal (β = 0.23, *Z* = 2.16) and were more likely to be depressed (β = -0.23, *Z* = -2.72).

In the path analysis using the residualized change approach, the model accounted for 27% of the variance in "long-term" emotional arousal and 20% of the variance in depression. Disengagement coping was related to higher levels of depression (β = 0.31, *Z* = 3.12), but unrelated to "long-term" emotional arousal (β = 0.01, *Z* = 0.19). Higher levels of "initial" emotional arousal were related to higher levels of depression (β = 0.24, *Z* = 2.05) and "long-term" emotional arousal (β = 0.41, *Z* = 3.53) whereas higher "long-term" emotional arousal was only marginally related to lower depression (β = -0.16, *Z* = -1.73). Gender remained a significant predictor of depression (β = -0.22, *Z* = -2.35).

In sum, models examining the mediating effect of changes in emotional arousal were not supported. None of the models supported an indirect effect of PF coping, EF coping, or disengagement coping on depression through reductions in emotional arousal. Disengagement coping was the only dimension of coping directly related to depression as hypothesized. However, levels of disengagement coping were unrelated to reductions in or levels of emotional arousal whereas higher levels of both PF and EF coping were predictive of greater reductions in emotional arousal across the coping process.

Does the Relative Use of Coping Behaviors Matter?

Two approaches were used to examine whether higher levels of EF and disengagement coping relative to PF coping would predict higher levels of depressive symptoms (*Hypothesis 4).* The first approach tested the interaction of EF coping and disengagement (EFD) coping with PF engagement coping above and beyond the main effects and demographics. As such, this approach examined whether the importance of using a more ruminative coping response to a peer stressor (i.e., EFD coping) would be buffered by the use of PF coping. The second approach examined the same question by creating a ratio, rather than an interaction term, based on these dimensions of coping. Although perhaps not as conceptually clear, the second approach was used because of limited power and the fairly high correlation between EFD and PF coping ($r = .66$).

For the first approach, a variable was created to represent the extent to which adolescents used both EF coping and disengagement coping across the process, termed *EFD coping style.* The mean of EF and disengagement style scales comprised EFD coping such that high levels of EFD coping represented a coping response most closely resembling rumination. Descriptive statistics for EFD Coping as well as zero-order correlations with

other variables can be seen in Table 5. This variable, along with PF coping, were centered and used to create the interaction term of EFD*PF coping. EFD, PF, and EFD*PF coping were then added to the baseline model as exogenous variables and were allowed to co-vary. It was hypothesized that for adolescents who used low PF coping, there would be a significant positive relationship between their EFD coping and depression. However, for adolescents who used medium or high levels of PF coping, there would be no relationship between their EFD coping and depression.

Results can be seen in Table 8 (Model A). The specified model accounted for 28% of the variance in depression scores. Contrary to hypothesis, the interaction of EFD coping with PF coping was not significant ($\beta = -0.06$, $Z = -0.50$). As expected, higher levels of EFD coping were related to higher levels of depression ($\beta = 0.51$, $Z = 3.79$) and higher levels of PF coping were related to lower levels of depression ($\beta = -0.41$, $Z = -2.77$).

In the second approach, a ratio, subsequently referred to as *EFD-PF coping,* was created that reflected the proportion of an adolescent's coping style that was characterized by EFD coping relative to her total coping (across all three dimensions of coping). The EFD-PF coping ratio was created by taking the sum of the EF and the disengagement coping styles scales and dividing by the sum across all three dimensions. Therefore the EFD-PF ratio reflected the proportion of one's total coping that was made up of EFD (or ruminative) coping. An EFD-PF coping ratio of .66 reflected equal use of all three dimensions of coping. In the current sample the EFD-PF coping ratio ranged from .50 to .90, and was normally distributed (M = .68, SD = 0.06). Zero-order correlations of the EFD-PF coping ratio with other variables can be seen in Table 5. A path model was estimated that included the direct effects of gender, parent education, race, and EFD-PF coping on adolescent depression. All

exogenous indicators were allowed to co-vary. It was hypothesized that EFD-PF coping would have a significant positive direct effect on depression above and beyond the effects of demographic variables.

The results of this model can be seen in Table 8 (Model B). The final model accounted for 25% of the variance in depression scores. As hypothesized, higher levels of EFD-PF coping were associated with higher levels of depression ($\beta = 0.36$, $Z = 3.60$) above and beyond the effects of demographic variables. To understand if the EFD-PF ratio still predicted depression scores above and beyond an adolescents' use of any one dimension of coping alone, three additional models were specified in which the main effect of each of the dimensions of coping were added to the EFD-PF model in turn[8]. Results of these models can also be seen in Table 8 (Models D through F). These models each accounted for 26-27 % of the variance in depression scores. In all models, EFD-PF coping maintained a significant positive relationship to depression above and beyond the effects of covariates and the main effects of PF coping ($\beta = 0.48$, $Z = 4.70$), EF coping ($\beta = 0.37$, $Z = 3.73$), or Disengagement coping ($\beta = 0.29$, $Z = 2.29$).

In sum, the relative use of EFD coping to PF coping, as indexed by a ratio of an adolescents' total coping, uniquely predicted depression after controlling for demographics and any one dimension of coping. However, there was no support for an interaction of EFD and PF coping on depression above and beyond the main effects of these two modes of coping. Consequently, there appears to be some support for the predictive utility of relative coping from the current study.

[8] An additional model was specified in which the main effect of EFD coping was added with covariates and EFD-PF coping. Results of this model can also be seen in Table 8 (Model C). EFD-PF coping maintained a significant positive relationship to depression above and beyond covariates and EFD coping ($\beta = 0.32$, $Z = 2.93$).

Do Specific Trajectories or Timing of Coping Behaviors Matter?

Hypothesis 5 was tested using a single approach. Because there was theoretical rationale for specific trajectories of interest, individuals were assigned to groups based on their trajectory of EFD-PF coping ratio across the coping process[9]. Specifically, two trajectories of EFD-PF coping were hypothesized to predict depression. The first trajectory, *High, Consistent EFD-PF Coping,* represented those adolescents who "immediately" responded to this peer-stressor with higher EFD-PF coping and continued to do so over the course of the hypothetical week. Thus these adolescents were hypothesized to have a more automatic or ingrained ruminative response. The second trajectory, *Increasing EFD-PF Coping*, represented those adolescents who "initially" respond with lower levels of EFD-PF coping, but then used increasing amounts of this strategy as the hypothetical week unfolded. Thus, these adolescents were hypothesized to have a developing pattern of rumination over the coping process (see Figure 7 for conceptual clarity).

To create individual trajectories for each adolescent, an EFD-PF coping ratio was calculated for each of the three sequences in the same manner as in previous models, encapsulating the degree to which an adolescent employed EFD-PF coping as a coping strategy within that particular sequence. Subsequently, "initial" (within the hypothetical lunch period), "short-term" (within the hypothetical rest of the day), and "long-term" (within the hypothetical rest of the week) EFD-PF coping ratios were entered as repeated measures into the OLStraj SAS Macro (Carrig, Wirth, & Curran, 2004) to estimate individual growth

[9]A few other methods are currently available to test whether such trajectories of coping are related to depression (i.e., testing the interaction of EFD-PF coping and time as a predictor or using empirically-derived clustering techniques such as growth mixture modeling (Nagin, 1999)). However, many of these methods are still controversial (see Bauer & Curran, 2003) and are data-driven or underpowered in the current study.

curves of EFD-PF coping over the process. This macro estimates a best-fit line for each individual's use of EFD-PF coping over the three time points. For each individual, their intercept, slope, and end point were estimated and used as criteria for group assignment.

Examination of OLS trajectories across individuals indicated adequate variability in EFD-PF coping trajectories (see Figure 8). A combination of theoretically- and empirically-based judgments guided what comprised meaningfully "high" levels of an EFD-PF ratio. Specifically, high levels of EFD relative to PF coping were based on face validity (i.e., a 2-point difference in EFD and overall coping appears sizeable) and the distribution of the EFD-PF coping ratio in the current sample (1 SD above the mean). These two criteria converged at an EFD-PF ratio of .74 or above as reflecting "high" levels of this type of coping. Therefore, individuals whose OLS trajectory intercept and predicted end points on EFD-PF coping were both above a .74 were assigned to the *High, Consistent Copers* group (N=6). Individuals whose fitted trajectories ended above a .74, and increased at a steady rate across the process (in this case .06: 1 SD above the mean slope) were assigned to the *Increasing Copers* group (N=7). The remaining 71 individuals were assigned to the *Other Copers* group and reflected any other observed trajectories of EFD-PF coping in the current sample.

These groupings were compared on depression scores using two dummy variables, with the *Other Copers* as the comparison group. These dummy variables were then entered into a path model as exogenous indicators in addition to demographic covariates. Direct paths from each of the five exogenous indicators to depressive symptoms were specified. It was hypothesized that *High, Consistent Copers* relative to *Other Copers* would have the strongest positive direct effect on depression while *Increasing Copers* relative to *Other Copers* would be associated with depression, but not as strongly.

The final model accounted for 20% of the variance in depression scores. As hypothesized, participants who had *High, Consistent EFD-PF Coping* trajectories across the coping process relative to *Other Coping* trajectories had significantly higher depressive symptoms above and beyond the effects of demographic variables ($\beta = 0.22$, $Z = 2.17$). Participants who had *Increasing EFD-PF Coping* trajectories compared to *Other Coping* trajectories had marginally higher depression scores ($\beta = 0.21$, $Z = 1.78$). A follow-up model was specified in which H*igh, Consistent Copers* were placed as the reference group to understand whether Increasing Copers differed significantly from *High, Consistent Copers* on depression. Results indicated that these two groups did not significantly differ from one another on depression scores ($\beta = -0.03$, $Z = -0.19$). Results of both models can be seen in Table 9.

In sum, high consistent use of EFD-PF coping across the entire coping process was predictive of depression scores while increasing use of EFD-PF coping was marginally predictive. However these two groups did not differ from each other on depression scores. Therefore, the predictive power of specific trajectories of "ruminative" coping responses as indexed by EFD-PF coping in addition to mean level differences to distinguish adolescents higher on depression was generally supported by the current study.

Post-Hoc Analyses

Two sets of post-hoc analyses were conducted. First, follow-up analyses were run to better understand the relative use of EFD and PF coping in predicting depression (i.e., results from *hypotheses 4* and *5*). Second, a series of competing path models were estimated to test alternative relationships between the constructs of coping, changes in emotional arousal, and depression that might equally or better explain the observed relationships. Thus, although the

theoretical framework for the current study is that of coping patterns in response to stress impacting later depression, it is equally plausible that depressive symptoms impair the development of coping (Grant et al., 2003; Seiffge-Krenke, 2000; Seiffge-Krenke & Klessinger, 2000). In addition, it could be argued that depression is something more endogenous to an individual (i.e., at a trait level), and thus this may moderate the relationship between coping and arousal. Thus, where possible, these competing models inform the relative strength of alternative explanatory relationships among variables of interest. These two sets of analyses are presented below.

Follow-up Analyses. In order to better understand trajectories of coping, two follow-up analyses were conducted. First, because *High, Consistent* and *Increasing* copers did not differ from one another in risk for depression, it may be that trajectories of EFD-PF coping over the three sequences is not as critical to risk for depression as is having higher EFD-PF coping in the "long-term" sequence. To test this, "initial," "short-term," or "long-term" EFD-PF coping were entered into separate models along with covariates to predict depression. Results indicated that "initial" ($\beta = 0.29$, $Z = 2.98$), "short-term" ($\beta = 0.28$, $Z = 2.78$) and "long-term" ($\beta = 0.36$, $Z = 3.60$) EFD-PF coping all significantly predicted depression above and beyond demographic variables. However, based on parameter estimates and variance explained "long-term" EFD-PF coping was the most powerful predictor (explaining an additional 13% of variance in depression scores above demographic variables), followed by "initial" EFD-PF coping (explaining an additional 8%), and "short-term" EFD-PF coping (explaining an additional 6%). Consequently, while an adolescent's use of EFD-PF coping predicted depression at any point in the coping process, the use of this constellation of coping behaviors towards the end of the coping process was the most predictive of depression.

Second, OLS trajectories were estimated for each of the three theoretical groups (rather than for each individual) using the OLStraj SAS Macro (Carrig et al., 2004) to describe changes in the three dimensions of coping and arousal over the course of the coping process for *High, Consistent, Increasing,* and *Other* copers. These trajectories can be seen in Figures 9 and 10. While not inferential in nature, these plots may be used descriptively to lend insight into the current findings. For EF coping and emotional arousal, *Other* copers and *High, Consistent* copers appear to follow similar trajectories across hypothetical time. However, these two groups showed mean-level differences in PF coping and disengagement coping such that *High, Consistent* copers used higher levels of disengagement coping and lower levels of PF coping across the process. In contrast, *Increasing* copers displayed divergent use of disengagement and PF coping across the process such that their use of disengagement coping starts low and increases, and their use of PF coping steadily decreases over the process. Therefore, *Increasing* copers appear to become more and more disengaged over the course of the week and less and less likely to report PF coping. Furthermore, *Increasing* copers were much less aroused and used consistently less EF coping across the process than either of the other groups. Means and standard deviations on variables of interest across groupings can be seen in Table 10.

In sum, follow-up analyses indicated that implementing more "ruminative" EFD-PF coping later in the coping process had the strongest association with depressive symptoms. However, exploratory plots reveal interesting qualitative differences between theoretically-derived groups of *High, Consistent* and *Increasing* copers, in the patterning of coping dimensions and in levels of arousal across the coping process such that these groups may categorize qualitatively different pathways of "ruminative" responses.

Testing Competing Models. A series of competing path models were specified and estimated to test alternative relationships between the constructs of coping, changes in emotional arousal, and depression that might equally or better explain the observed relationships. Specifically, it was first examined whether the relationship between coping and arousal varied as a function of the level of depression an adolescent brings into a stressful encounter. Second, it was examined whether an adolescent's past level of depression may predict her current coping repertoire above and beyond demographic variables. Thus, previous levels of depression may drive the development of coping rather than the current framework of coping driving depressive outcomes. Because EFD-PF coping emerged as the most robust coping predictor of depression, these competing models were only run with EFD-PF coping. Graphical depictions and significant pathways within these competing models can be seen in Figure 12. Results can be seen in Table 11.

Because results from hypotheses regarding the use of relative coping indicated that the combination of coping strategies matters more than any single dimension of coping, EFD-PF coping was entered as an exogenous variable (as in specified models for hypotheses 1-3) in order to examine whether its impact on depression would be partially mediated through changes in emotional arousal (see Figure 11). Thus, hypotheses one through three may not have been supported in the current study because single dimensions of coping do not adequately capture coping important in regulating emotional arousal. Consequently, this model was specified prior to the two competing models just outlined. This initial specified model accounted for 7% of the variance in changes in emotional arousal and 31% of the variance in depression. Results indicate that while EFD-PF coping was unrelated to changes in emotional arousal ($\beta = 0.13$, $Z = 0.98$), it was significantly related to depression ($\beta = 0.40$,

$Z = 4.27$). Reduced emotional arousal was also related to depression ($\beta = -0.25$, $Z = -2.93$). Finally, there was no indirect effect of EFD-PF coping through reductions in emotional arousal ($\beta = -0.03$, $Z = -0.89$). Thus, the emotional regulatory function of EFD-PF coping was not supported (Model A).

The first alternative model examined whether depression served as a moderator of the relationship between coping and reductions in emotional arousal. To examine this model, both EFD-PF coping and depression were centered and then multiplied together to create the interaction term EFD-PF*Depression. Covariates as well as these centered predictor and interaction terms were entered as exogenous variables predicting reductions in emotional arousal into a path model (using a raw change score approach). The specified model accounted for 16% of the variance in changes in emotional arousal. Results indicate that while depression was associated with greater reductions in emotional arousal ($\beta = -0.29$, $Z = -2.28$) and EFD-PF coping was marginally related to less change in emotional arousal ($\beta = 0.26$, $Z = 1.89$), there was no moderating effect of depression ($\beta = -0.11$, $Z = -1.11$) on the EFD-PF to arousal relationship.

The second alternate model examined whether previous levels of depression predicted EFD-PF coping and changes in emotional arousal. Because we collected depression data from previous time points, we were able to examine this competing model. Consequently, self-reported depression from previous assessments (Phases I, II, & III) were averaged to comprise an estimate of overall depression prior to the current assessment at Phase IV [10]. Previous depression, along with demographic covariates, were entered into the model

[10] A total of 78 of the 84 participants had at least 1 self-reported assessment of depression. The number of previous reports ranged from 3 (N=56) to 1 prior assessment (N=23). Previous depression was correlated with current depression at .55.

as exogenous indicators (ideally, previous levels of EFD-PF coping would also be entered as a covariate, however this information is unavailable in the current study). EFD-PF coping and raw change in emotional arousal were entered as endogenous variables, with EFD-PF coping serving as the mediator. Direct and indirect paths were specified. Results indicate that the final model explained 6% of the variance in EFD-PF Coping and 13% of the variance in changes in emotional arousal. Higher levels of previous depression predicted higher levels of current EFD-PF coping ($\beta = 0.24$, $Z = 2.06$), and males were more likely to have less reduction in emotional arousal during the coping process ($\beta = 0.28$, $Z = 2.61$). No other paths were significant in the model.

In sum, results from alternative models were consistent with a possible bi-directional relationship between EFD-PF coping and depression such that higher previous levels of depression predicted higher current levels of EFD-PF coping and higher levels of current EFD-PF coping were associated with higher levels of current depression. In addition, models did not support depression as a moderator of the coping-arousal relationship or the indirect effect of EFD-PF coping on depression through its ability to reduce arousal over the coping process.

CHAPTER 4

DISCUSSION

The current study examined adolescent coping in response to peer stress as it relates to depression using an approach more consistent with dynamic conceptualizations of stress-coping process in adolescents. Specifically, the study examined theoretically relevant yet neglected aspects of the coping process including emotional regulatory aspects, relative coping, and unfolding trajectories of adolescent coping. Results from the current study do not support coping behaviors' relation to depression partly through their ability to down-regulate emotional arousal in a given situation. However, results do suggest that the relative use of coping behaviors possibly reflecting a more "ruminative" response pattern, as indexed by the EFD-PF coping ratio, is positively associated with depressive symptoms above and beyond demographic characteristics or single dimensions of coping. In addition, findings offer preliminary support for the importance of the timing of EFD-PF coping use within the process. Adolescents who evidenced *high, consistent* and *increasing* use of EFD-PF coping over the process were higher on depression than adolescents with *other* EFD-PF coping trajectories. Findings are also consistent with a bi-directional relationship between the development of depressive symptoms and ruminative coping responses to peer-related stress. These findings are discussed below within the broader framework of using the current approach to assess adolescent coping responses and their relation to adjustment.

Relative Coping Matters

Findings from the current study highlight the importance of examining adolescents' use of multiple dimensions of coping in response to salient stressors in their lives. Specifically, greater use of disengagement and EF coping relative to PF coping in response to a hypothetical peer-rejection stressor was related to greater depressive symptoms. This specific constellation of coping behaviors, as indexed by the EFD-PF ratio, positively predicted depressive symptoms above and beyond demographic characteristics or any single dimension of coping. In fact, with the ratio in the models, none of the individual dimensions of coping were significantly associated with depression. Only EFD coping remained marginally related to depression. Thus, results suggest that the degree to which an adolescent uses higher levels of disengagement and emotion-focused engagement coping and lower levels of problem-focused coping is a stronger index of "maladaptive" coping with regards to depression than their use of single dimensions of coping alone.

This stands in contrast to the more widely used approach of examining the relationship between single dimensions of coping and adjustment outcomes (Compas et al., 2001) and supports researchers who have asserted the need to investigate the interplay of various coping behaviors (Garnefski et al., 2001; Sandler et al., 1997). Although a few other studies to date have examined the relationship between adolescent coping and psychological adjustment along multiple dimensions simultaneously (via typologies) (Tolan et al., 2002), these typologies have been empirically-derived and have yet to establish the predictive utility of such a multidimensional approach beyond the main effects of single dimensions of coping. The power of EFD-PF coping's relation to depression in the current study supports a theoretical approach to deriving constellations of coping dimensions that act in concert to

relate to depression. Such theoretically-guided typologies have been quite powerful predictors of child and adolescent outcomes above and beyond single dimensions in other literatures (i.e. combining dimensions of parental warmth and control to categorize parenting styles (Baumrind, 1989)). The current findings only reinforce the need for the researchers to give more careful thought to the organization of coping behaviors that might better predict and ultimately explain how coping and depression influence each other across adolescence.

While EFD-PF coping was a powerful predictor of depression, the exact interplay of the constituent dimensions is somewhat unclear. Zero-order correlations between EFD-PF coping and the dimensions of which it is comprised revealed modest relations with EF coping ($r = -.08$), DIS coping ($r = .43$), and PF coping ($r = -.59$), indicating that this unique combination was not being driven by only one dimension. However, the current study did not support the hypothesis that the relationship between EFD coping and depression varied as a function of an adolescent's use of problem-focused engagement coping over the process (as tested by the interaction of EFD*PF coping). Lack of support for this interaction leaves unclear the specific relations among these dimensions of coping and depression (i.e. EFD coping is only problematic in the face of low PF coping). Such interactions are ultimately the most useful in understanding what and how a specific constellation of coping behaviors may be implicated in depression and vise versa. Studies with increased statistical power may be able to detect this interaction.

While it appears that an adolescents' greater use of EFD-PF coping in response to peer stress may place her at-risk for depression, the degree to which EFD-PF coping actually reflects a "ruminative" response in the current study is not definitive. Certainly a pattern of coping in which an adolescent is simultaneously attempting to disengage from the stressful

experience while also continuing to focus on her emotional states at the expense of more problem-focused efforts is consistent with processes of rumination as currently conceived in the literature (Nolen-Hoeksema, 1991). Research has established that both disengagement coping and involuntary coping responses that focus attention on internal emotional states evidence strong associations with depression (Silk, Steinberg, & Sheffield Morris, 2003). However, it remains unclear which of these forms of coping better reflects rumination, whether a combination of these forms reflect rumination, or how rumination as a cognitive tendency (separate from coping) plays into either one of these forms of coping.

This points to the importance for future studies to disentangle how specifically rumination maps onto coping processes in adolescents or how rumination and coping interact as separate constructs in simultaneous operation. Studies in which coping behaviors and ruminative tendencies are assessed *simultaneously* are needed to empirically test the overlap between rumination and established coping dimensions. However, findings from the current study add preliminary support that a possible parallel process of "ruminative" coping may occur in response to peer-stress (not merely depressed mood) and within established dimensions of adolescent coping behaviors, something yet to be examined in either the coping or depression literatures.

Examining Unfolding Coping Patterns is Important

Current findings also offer preliminary support for examining the temporal patterning of adolescent coping behaviors within the coping process. While only two studies have offered either anecdotal evidence of intra-individual variability in coping (Seiffge-Krenke, 1995) or established significant variability over time in adolescent coping behaviors (Feagans et al., 2005), this is the first study, to my knowledge, that offers evidence for such variability

as useful in predicting adjustment outcomes. Specifically, results indicate that *high, stable* and *increasing* use of EFD-PF coping are more problematic with regards to depression than *other* types of trajectories[11]. In addition, it appears that where an adolescent "ends up" on this constellation of coping behaviors appears to matter more than where they begin.

Although preliminary, these findings are promising for several reasons. First, these trajectories were hypothesized a priori offering more confidence that such groups may actually exist outside of this sample and for reasons hypothesized. Second, although each of the two "risk" groups consists of small numbers of adolescents, the variation around means for "initial," "short-term," and "long-term" coping were fairly similar for all three groups (see Table 10). Thus, risk groups were not more or less error free than the larger comparison group of *Other* copers. Understanding how and why adolescents may gravitate towards more EFD-PF coping over the process therefore appears to be an important avenue to pursue, particularly for understanding mechanisms implicated in maladaptive coping and for intervention.

Notably, qualitative post-hoc analyses suggest that while adolescents who gravitate towards more "ruminative" coping patterns as the process unfolds are higher on depression, the paths they take to get there may not be uniform. Thus, while both H*igh, Consistent* and *Increasing* copers ended higher on EFD-PF coping, their relative use of specific dimensions of coping and levels of emotional arousal do not appear to follow similar patterns. Specifically, the *Increasing* copers appear to respond to the hypothetical stressor with

[11] It should be noted, that the *Increasing* copers were only marginally higher on depression scores than *Other* copers, and thus might not be considered at quite the same risk as *High, Consistent* copers. However, given the small number of individuals who comprised each group and the fact that the two "risk" groups did not significantly differ from each other on depression, it is reasonable to assume that both *high, consistent* and *increasing* trajectories of EFD-PF coping are problematic within the current sample.

relatively equal levels of disengagement and PF coping but their use of disengagement coping appears to rise, while their use of PF coping drops steadily over the process. In contrast, *High, Consistent* copers evidenced higher levels of disengagement and lower levels of PF coping across the entire process. Both these patterns were consistent with the hypothesis that *high, stable* EFD-PF coping trajectories may reflect a more engrained ruminative response, while *increasing* EFD-PF coping trajectories may reflect a developing ruminative response. However unexpectedly, *High, Consistent* copers and *Increasing* copers appear to be quite different on EF coping and emotional arousal. Specifically, *Increasing* copers report lower levels of both emotional arousal and EF coping overall than *High, Consistent* copers (or *Other* copers for that matter). Thus, the *Increasing* copers appear to "give up" somewhere along the way, but also don't report being as emotionally aroused to begin with.

Although such descriptive data does not allow us to draw conclusive inferences from the above comparisons, they do offer the provocative suggestion that these two risk groups may not be defined entirely by the same risk. Indeed these two coping trajectories may reflect equifinality, as adapted from systems theory to developmental psychopathology (Cicchetti & Rogosch, 1996) in which the same outcome is achieved via diverse pathways. Thus, these two trajectories could reflect very different groups of individuals, both who end high on EF-PF coping, but by different means. Such differences in unfolding coping processes of distinct groups of individuals, might require different explanatory mechanisms or points of prevention and intervention.

Coping Needs to be Examined within the Context of Arousal

Although hypotheses regarding the emotion regulatory aspects of coping were not supported in the current study, findings from these hypotheses highlight the necessity of assessing coping in the context of arousal (or stress-reactivity more generally). Indeed, assessing coping and arousal together will allow us to garner a better understand of how coping (aside from arousal) is related to depression. For example, in the current study when either changes in or initial levels of emotional arousal were taken into account, EF coping no longer evidenced a significant relationship with depression. Thus, in the current study it appears that emotional arousal, rather than coping, may be what is driving the relationship between both EF coping and depression. Indeed, a host of research has shown that arousal and coping are highly correlated (Compas et al., 1997) and that depressed adolescents respond to stressors with heightened levels of emotional arousal (Compas, Conner-Smith, & Jaser, 2004). Therefore, inclusion of arousal processes are necessary in order to assess whether arousal (e.g., stress reactivity) or the management of that arousal via coping behaviors (e.g., regulation) are what better account for the relation between experiences of stress and depression across adolescence.

Another advantage of examining coping in the context of arousal is the ability to tease apart how coping aside from other trait-level characteristics may account for the relationship between coping and depression during adolescence. In the current study, both PF coping and EF coping were positively related, as expected, to initial emotional arousal. However, neither dimension was related to depression after taking into account demographic variables and changes in arousal. Conversely, disengagement coping was unrelated to emotional arousal within this hypothetical stressful situation, but was significantly related to depression.

Because disengagement coping was the only form of coping to be strongly related to depression but not to emotional arousal across models, it raises the question of whether disengagement coping reflects "coping" so much as it may reflect symptomatology or some other overlapping personality dimension. If coping behaviors have as one of their primary functions the regulation of arousal in stressful situations (Folkman & Moskowitz, 2004) (and thus should evidence a positive association with levels of arousal), then disengagement coping in the current study would not constitute "coping."

Such findings are particularly important given that the current literature would suggest that disengagement coping has strongest concurrent and prospective links of any dimension of coping to depression (Herman-Stahl & Petersen, 1996; Seiffge-Krenke, 1993, 1998, 2000). A possible reason disengagement coping has evidenced such strong associations with depression in adolescents is that disengagement coping reflects developing symptomatology more than it reflects actual coping. Many of the current methods of assessing coping (i.e., retrospective self-report checklists) cannot inform such a distinction because depressogenic attributions play a role in such reports. Specifically, because depressed individuals tend to make negative inferences about their behavior (Hammen & Zupman, 1984; K. B. Hoffman et al., 2000), they may infer they used ineffective coping strategies when this may not necessarily be the case. Such depressogenic biases can lead to an erroneous correspondence between disengagement coping and symptomatology (Todd et al., 2004). These same biases may have played a role in adolescents of coping in the current study leading them to report that they were using disengagement coping even when they weren't that aroused. Consequently, their higher levels of disengagement "coping" may reflect something more dispositional, and not contingent on whether they are aroused at all.

Assessing both arousal and coping, as in the current study, may therefore allow us to better understand coping as distinct from such existing symptomatology.

Utility of Current Approach to Examining Stress-Coping Process

The current approach to studying the stress-coping process in adolescents and its relationship to adjustment outcomes appears to have multiple advantages over current methods more commonly used in the field. First, theoretically-driven coping research in which careful thought is given to why and when coping behaviors should lead to specific outcomes offers better predictive and explanatory utility. Support for hypotheses regarding the relative use of specific coping dimensions and unfolding trajectories of coping behaviors attest to the power of a more theoretically-driven approach to examining how coping behaviors should be related to depression during adolescence. Second, the assessment of more conceptually-consistent dynamic processes that tap both arousal and unfolding coping behaviors, will help move the field towards testing and understanding mechanisms rather than trait-level associations between coping and psychopathology. Indeed approaches such as the one used in the current study may allow us to better understand the relationships among arousal, coping, and symptomatology in adolescents.

Limitations

Despite these contributions, there are important limitations that should be considered in tandem with the current study's strengths. First, the current study assessed unfolding emotional arousal and coping behaviors only in response to a hypothetical scenario. Therefore, it is not clear whether adolescent reports on arousal and coping in "hypothetical" time generalize to unfolding patterns as they actually occur in "real" time. Adolescents may not be able to accurately report how they would cope or feel in response to a hypothetical

scenario. This may offer one explanation for the lack of findings regarding the emotional regulatory aspects of coping behaviors (i.e., adolescents were better able to report out reactivity than regulation). Additionally, the same depressogenic biases that play into retrospective measures (Hammen & Zupman, 1984; K. B. Hoffman et al., 2000) may also impact hypothetical responses. Although some evidence would suggest that this occurs to a lesser extent than in retrospective assessments (Smith et al., 1999; Stone et al., 1998), more empirical evidence is needed to assess the convergence and divergence between hypothetical reports and retrospective and online assessments of coping. Consequently, it will be important for future studies to utilize multi-method, multi-informant study designs to empirically examine the correspondence among different measures of adolescent coping processes.

Second, the current study assessed adolescent coping behaviors in response to one type of stress, namely peer rejection. Thus, the coping patterns found in the current study may not generalize past this specific type of stressor. Although the experience of peer-rejection is quite salient to most adolescents (Bowker et al., 2000), particularly for those with a depressogenic attributional style (Prinstein & Wargo Aikins, 2004), adolescents may respond quite differently to different types of peer stressors or other types of stressors in general (i.e., academic or family). There is evidence to suggest that adolescent coping responses are characterized both by stable trait-level characteristics as well as by variability in how they respond to different types of stressors (Bowker et al., 2000; Seiffge-Krenke, 1995). Thus it is ultimately important to examine how adolescents' coping responses across different types of stress vary, particularly for stressors like peer-rejection with established links to depression. Consequently, more studies in which adolescents' coping responses to

other types of salient stressors will help illuminate meaningful similarities and differences among adolescents' coping responses to peer-rejection stress and their coping responses to other types of stress and depressive symptoms. That being said, it is actually quite promising that in response to a single salient stressor in adolescents' lives such strong findings were present in the current study.

Third, the small and restricted sample used in the current study limits both the generalizability of findings and the ability to detect smaller effects. Comparison with the school-based sample at Phase III revealed the current sample was lower on delinquency and higher on anxiety and parent education. Thus findings from the current study may not be representative of all adolescents. Importantly, the current findings cannot be generalized to adolescents who rank on the extreme end of the depression continuum because such individuals were dropped from the current study (i.e. those higher than 2 SDs above the mean). However many researchers have argued that individuals at the extreme end of the depression spectrum may be qualitatively different (Graber, 2004) and thus research may need to study that population separately. In addition, the current sample size did not yield enough statistical power to detect small to moderate effects based on a nested models approach (Kaplan, 1995) and a working sample size of 70 for Cohen's (1977) chi-square tables. Given the strength of the ratio to predict above and beyond single dimensions of coping and modest bi-variate correlations among coping dimensions, this appears to be the most plausible explanation for non-significant interaction term in hypothesis four. Therefore, replication of these promising findings from the current study with larger and more representative samples is an area for future inquiry.

A final limitation of the current study is its inability to tease apart the direction of effects between coping and depression. For the most part, the current study assessed the concurrent relationship between how adolescents cope with a hypothetical peer-rejection stressor and their current depressive symptoms. However, previous research supports a bi-directional relationship between forms of coping and depressive symptoms (Compas et al., 2001; Seiffge-Krenke, 2000). Findings from the current study are consistent with such a bi-directional relationship. Specifically, an adolescent's previous levels of depression predicted current levels of "ruminative" coping, as indexed by the EFD-PF ratio. However, the study design did not allow me to control for previous levels of EFD-PF coping, leaving ambiguous whether this effect is net of previous levels of EFD-PF coping. In addition, the current study was unable to assess how current EFD-PF coping, controlling for current depressive symptoms, predicts future depression. Thus, evidence from the current study is consistent with, but does not offer any substantive conclusions about, the relative impact of previous depression on current coping versus the impact of current coping on future depression. It will be important for future studies to examine this cyclical process between EFD-PF coping and depressive symptoms.

Future Directions

Future research may also want to explore the mechanisms that lead to adolescents' greater use of this particular constellation of coping behaviors or the processes through which such relative coping exerts its influence on depressive symptoms. One set of relevant mechanisms to explore with regards to Lazarus and Folkman's transactional model and depression in particular, are cognitive appraisal processes. In their conceptual model, primary appraisal processes involve perceptions of how stressful an event is and secondary appraisal

processes involve an individual's evaluation of available resources and responses to deal with the stressor. Both of these initial appraisal processes feed into coping behaviors (Folkman & Lazarus, 1980). Primary and secondary appraisal processes have particular relevance for understanding the coping-depression relationship because attributions such as negative inferences about the cause, consequences, or self-implications of negative events have garnered considerable support in the depression literature as prospectively predicting depression (Graber, 2004; Hankin & Abramson, 2001; Nolen-Hoeksema et al., 1999) and are the central tenet of the Generic and Elaborated Cognitive Vulnerability-Transactional Stress Models (Hankin & Abramson, 2001). These models assert that certain individuals possess cognitive vulnerabilities such that when confronted with negative events they are more likely to interpret the event in a negatively biases manner.

It seems feasible then, that adolescents who appraise a stressful situation as "hopeless" or "over-consequential" to their self-worth immediately after a negative event (like peer-rejection) occurs, may experience heightened negative emotional arousal *and* use more ineffective coping strategies. Indeed, this pattern would be quite consistent with the *high, consistent* trajectories evidenced in the current study. Thus, such negative cognitive appraisals of an event and one's ability to deal with it may influence her choice of more "maladaptive" coping strategies. It may be that the *Increasing* copers possess only one of these cognitive vulnerabilities. Specifically, they may not have appraised the peer-rejection scenario as all that consequential to themselves (hence lower arousal), but may have viewed their ability to deal with the event as poor or out of their control and thus may have "given up" somewhere within the process. Thus, these very different negative appraisal processes may explain these groups' differential risk. Indeed, appraisal processes of control have been

a pivotal differentiator of an adolescents' choice to use more active coping strategies as well as the effectiveness of those strategies (Compas et al., 2001). Therefore, such appraisal processes and cognitions will be an important level of behavior to include in future work assessing adolescents' unfolding stress and coping processes. These processes are theoretically-relevant to adolescent depression and conceptually consistent with stress-coping conceptualizations and therefore are particularly promising areas to explore within the framework used in the current study.

General Conclusions

Findings from the current study offer promising preliminary support for examining unfolding coping behaviors and emotional arousal in response to salient stressors to better inform our knowledge of the coping–depression relationship in adolescents. Specifically, current findings attest to the advantages of examining coping in a more conceptually consistent and theoretically informed manner. More substantively, the current study suggests that an adolescents' use of high levels of EF and disengagement coping relative to her use of PF coping poses particular risk above and beyond risk posed by her use of any single dimension of coping. In addition, adolescents who immediately implement or gravitate towards this specific combination of coping behaviors appear to evidence higher levels of depressive symptoms than adolescents who did not. Therefore examining the interplay of various forms of coping and the point at which they are used within the coping process are promising areas for future research. Thus, findings offer both important contributions to our knowledge of the relationship between coping and depression during adolescence as well as interesting avenues for future inquiry.

Table 1

Hypotheses for Current Study

Hypothesis 1	Higher levels of problem-focused engagement coping will predict lower levels of depressive symptoms through reductions in negative emotional arousal.
Hypothesis 2	Higher levels of emotion-focused engagement coping will predict lower levels of depressive symptoms through reductions in negative emotional arousal.
Hypothesis 3	Higher levels of disengagement coping will predict higher levels of depressive symptoms through reductions in negative emotional arousal.
Hypothesis 4	Higher levels of emotion-focused engagement coping and disengagement coping relative to problem-focused engagement coping will predict higher levels of depressive symptoms.
Hypothesis 5	Both *stable, high* levels as well as *increasing* levels of emotion-focused engagement and disengagement coping relative to problem-focused engagement coping over the process will predict higher levels of depression.

Table 2

Sample Characteristics for Current Study against School-Based Sample at Phase III and Normative Data

Indicator	Current Sample Phase IV (N=84)	Phase III (N=292)	National Norms
Gender ◈ (percent male)	43%	53%	51%
Parent Education ◈ (percent of participant's parents who were college educated)	56%	33%	24%
Race ◈ (percent White)	64%	70%	75%
Depression mean (standard deviation)	.45 (.38)	.42 (.52)	.32 (.26)
Anxiety mean (standard deviation)	.36 (.32)	.25 (.24)	_ _ _ _ _ _
Aggression (Physical) (percent of participants using physical aggression in the past 3 months)	65%	65%	45%
Aggression (Delinquency) (percent of participants committing delinquent acts in the past 3 months)	39%	60%	30%
Tobacco Use * (percent of participants using in the past 3 months)	35%	44%	15%
Alcohol Use * (percent of participants using in the past 3 months)	58%	27%	33%
Marijuana Use * (percent of participants using in the past 3 months)	26%	22%	15%

Note. National norms for these two constructs and aggression are based upon normative statistics as reported out in corresponding measurement publications. The N varies slightly for phase III statistics, ranging from N=284 to N=293.

✳ *Source:* (Johnston, O'Malley, Bachman, & Schulenberg, 2005) The Monitoring the Future Survey – 10th grade national percentages of 30-day use for 2004

◈ *Source:* (U.S.Census Bureau, 2000) – based on population estimates for individuals aged 4-15

Table 3

Psychometric Properties of Coping Subscales for the Adolescent Coping Process Interview

ACPI Coping Subscale	Mean	Standard Deviation	Cronbach's Alpha
Venting feelings	2.44	.98	.75
Passive avoidance	2.61	.85	.60
Active avoidance	2.50	1.04	.80
Emotional support seeking	2.88	1.25	.86
Cognitive reframing	2.58	1.01	.82
Acceptance	2.99	1.15	.83
Seeking info internally	2.77	1.02	.80
Planful problem solving	2.67	1.10	.83
Confrontation	2.59	.95	.73
Instrumental support seeking	2.65	1.16	.85
Self-improvement	2.57	.99	.72

Table 4

Convergent and Divergent Validity Correlations of the ACPI with the A-COPE and Social Desirability Scale

ACPI Coping Subscale	A-COPE Convergence Scale	Correlation with A-COPE Scale	Correlation with Social Desirability	Fisher's R-to-z transformation test
Venting feelings	Venting feelings	**.36**	.06	**2.85**
Passive avoidance	Avoiding problems	**.33**	-.06	**3.63**
Active avoidance	Developing self-reliance	**.40**	.09	**3.01**
Emotional support seeking	Developing social support	**.60**	.15	**4.88**
Cognitive reframing	Developing self-reliance	**.50**	.19	**3.22**
Acceptance	Avoiding problems	***.22***	-.10	**2.92**
Seeking info internally	Developing self-reliance	**.37**	.15	***2.14***
Planful problem solving	Developing self-reliance	**.36**	.09	***2.59***
Confrontation	Developing social support	**.55**	***.25***	**3.27**
Instrumental support seeking	Developing social support	**.61**	.17	**4.84**
Self-improvement	Developing self-reliance	**.53**	***.28***	**2.72**

Note. **Bold** = $p < .01$; ***Bold Italics*** = $p < .05$

Table 5

Zero-Order Correlations, Means, Standard Deviations, and Alphas

	1	2	3	4	5	6	7	8	9	10	11	12	Mean (SD)	Observed Range	Alpha
1. Gender	1.0												----	0.0 – 1.0	---
2. Parent Education	.05	1.0											----	0.0 – 4.0	---
3. Race	.06	***-.27***	1.0										----	0.0 –1.0	---
4. PF Coping	**-.43**	-.07	-.05	1.0									2.57 (0.86)	1.0 - 4.2	.90
5. EF Coping	**-.55**	.05	***-.22***	**.70**	1.0								2.63 (0.99)	1.0 - 4.7	.85
6.Disengagment Coping	-.15	-.13	.03	***.26***	.13	1.0							2.77 (0.85)	1.0 - 4.7	.77
7. EFD Coping	**-.49**	-.05	-.14	**.66**	**.79**	**.70**	1.0						2.70 (0.69)	1.1 – 4.3	.80
8. EFD-PF Coping	.02	.03	-.07	**-.59**	**-.08**	**.43**	.21	1.0					0.68 (0.06)	0.5 - 0.9	---
9. Initial EA	**-.37**	.13	***-.26***	**.51**	**.67**	-.03	**.46**	-.19	1.0				2.75 (1.03)	1.0 – 5.0	.86
10. Long-Term EA	**-.36**	.08	-.12	**.49**	**.61**	.04	**.46**	-.15	**.75**	1.0			2.38 (1.07)	1.0 - 4.8	.90
11.Change in EA	***-22***	-.05	.07	**-.29**	**-.36**	.03	***-.24***	.13	**-.68**	***-.26***	1.0		-1.10 (0.97)	-3.5 – 1.5	---
12. Depression	**-.31**	.12	-.09	.01	***.24***	**.31**	**.36**	**.36**	***.26***	***.26***	***-.26***	1.0	0.45 (0.38)	0.0 – 1.7	.89

Note. **Bold** = p < .01; ***Bold Italics*** = p < .05; Abbreviation of terms can be seen on page VI.

Table 6

Mediating Effect of Change in Emotional Arousal: Raw Change

	β	Z	POV
HYPOTHESIS 1			
Change in Emotional Arousal			.10
Gender	0.12	1.01	
Parent Education	-0.06	-0.80	
Race	0.04	0.34	
Problem-Focused Engagement Coping	-0.25	***-1.91***	
Depression			.18
Gender	-0.35	**-2.81**	
Parent Education	0.10	0.75	
Race	-0.03	-0.33	
Problem-Focused Engagement Coping	-0.20	-1.59	
Change in Emotional Arousal	-0.24	**-2.46**	
HYPOTHESIS 2			
Change in Emotional Arousal			.13
Gender	0.03	0.31	
Parent Education	-0.04	-0.47	
Race	-0.01	-0.14	
Emotion-Focused Engagement Coping	-0.35	**-3.20**	
Depression			.15
Gender	-0.27	***-1.89***	
Parent Education	0.12	0.86	
Race	-0.03	-0.27	
Emotion-Focused Engagement Coping	0.00	0.01	
Change in Emotional Arousal	-0.19	**-2.06**	
HYPOTHESIS 3			
Change in Emotional Arousal			.06
Gender	0.23	**2.16**	
Parent Education	-0.04	-0.46	
Race	0.05	0.42	
Disengagement Coping	0.06	0.55	
Depression			.24
Gender	-0.23	**-2.72**	
Parent Education	0.16	1.22	
Race	-0.03	-0.32	
Disengagement Coping	0.31	**3.10**	
Change in Emotional Arousal	-0.21	**-2.40**	

Note. POV= percent of variance explained. N=84 for all models. Standardized parameter estimates are reported.
Bold = $p < .05$; ***Bold Italics*** = $p < .10$

Table 7

Mediating Effect of Change in Emotional Arousal: *Residualized Change*

	β	Z	POV
HYPOTHESIS 1			
Long-Term Emotional Arousal			.24
Gender	-0.03	-0.26	
Parent Education	0.03	0.35	
Race	-0.14	-1.56	
Initial Emotional Arousal	0.37	**3.15**	
Problem-Focused Engagement Coping	0.09	0.92	
Depression			.19
Gender	-0.33	**-2.63**	
Parent Education	0.09	0.67	
Race	-0.01	-0.08	
Problem-Focused Engagement Coping	-0.24	***-1.86***	
Initial Emotional Arousal	0.31	**2.64**	
Long-Term Emotional Arousal	-0.13	-1.36	
HYPOTHESIS 2			
Long-Term Emotional Arousal			.25
Gender	0.02	0.25	
Parent Education	0.02	0.29	
Race	-0.12	-1.35	
Initial Emotional Arousal	0.30	**2.56**	
Emotion-Focused Engagement Coping	0.21	***1.95***	
Depression			.15
Gender	-0.27	***-1.89***	
Parent Education	0.12	0.85	
Race	0.02	-0.23	
Emotion-Focused Engagement Coping	-0.01	-0.06	
Initial Emotional Arousal	0.21	1.64	
Long-Term Emotional Arousal	-0.15	-1.53	
HYPOTHESIS 3			
Long-Term Emotional Arousal			.23
Gender	-0.05	-0.50	
Parent Education	0.02	0.26	
Race	-0.13	-1.49	
Initial Emotional Arousal	0.41	**3.53**	
Disengagement Coping	0.01	0.19	
Depression			.25
Gender	-0.22	**-2.35**	
Parent Education	0.15	1.20	
Race	0.02	-0.21	
Disengagement Coping	0.31	**3.12**	
Initial Emotional Arousal	0.24	**2.05**	
Long-Term Emotional Arousal	-0.16	***-1.73***	

Note. POV= percent of variance explained. N=84 for all models. Standardized parameter estimates are reported. **Bold** = $p < .05$; ***Bold Italics*** = $p < .10$

Table 8

Models Examining Relative Coping

	β	Z	POV
HYPOTHESIS 4			
Model A: PF * EFD Coping			.28
Gender	-0.24	**-2.53**	
Parent Ed	0.12	0.97	
Race	0.01	0.10	
EFD Coping	0.51	**3.79**	
PF Coping	-0.41	**-2.77**	
PF*EFD Coping	-0.06	-0.50	
Model B: EFD-PF Ratio			.25
Gender	-0.33	**-3.60**	
Parent Ed	0.12	0.10	
Race	-0.01	-0.09	
EFD-PF Coping Ratio	0.36	**3.60**	
Model C: EFD-PF Ratio above EFD Coping			.27
Gender	-0.24	**-2.41**	
Parent Ed	0.14	1.07	
Race	0.01	0.09	
EFD Coping	0.19	***1.77***	
EFD-PF Coping	0.32	**2.93**	
Model D: EFD-PF Ratio above PF Coping			.27
Gender	-0.24	**-2.43**	
Parent Ed	0.14	1.08	
Race	0.01	0.07	
Problem-Focused Coping	0.20	1.58	
EFD-PF Coping	0.48	**4.70**	
Model E: EFD-PF Ratio above EF Coping			.26
Gender	-0.26	**-2.04**	
Parent Ed	0.12	0.94	
Race	0.01	0.12	
Emotion-Focused Engagement Coping	0.12	0.87	
EFD-PF Coping	0.37	**3.73**	
Model F: EFD-PF Ratio above DIS Coping			.27
Gender	-0.30	**-3.58**	
Parent Ed	0.14	1.15	
Race	-0.01	-0.16	
Disengagement Coping	0.16	1.37	
EFD-PF Coping	0.29	**2.29**	

Note. POV= percent of variance explained. N=84 for all models. Standardized parameter estimates are reported.
Bold = $p < .05$; ***Bold Italics*** = $p < .10$

Table 9

Models Examining Theoretical Groupings based on EFD-PF coping Trajectories

	β	Z	POV
HYPOTHESIS 5			
HC v Other & Increasing v Other			.20
Gender	-0.35	**-3.64**	
Parent Ed	0.15	1.21	
Race	-0.03	-0.26	
High Consistent Copers vs Other	0.22	**2.17**	
Increasing Copers vs. Other	0.21	***1.79***	
Increasing v HC & Other v HC			.20
Gender	-0.35	**-3.64**	
Parent Ed	0.15	1.21	
Race	-0.03	-0.26	
Increasing Copers vs. High Consistent	-0.03	-0.19	
Other vs High Consistent	-0.31	**-2.17**	

Note. POV= percent of variance explained. N=84 for all models. Standardized parameter estimates are reported. **Bold** = $p < .05$; ***Bold Italics*** = $p < .10$

Table 10

Means and Standard Deviations of Groups and Current Sample

Variable	Other Copers (N=71)	Increasing Copers (N=7)	High, Consistent Copers (N=6)	Full Sample (N=74)
Depression	0.41 (0.35)	0.62 (0.51)	0.72 (0.49)	0.45 (0.38)
PF Coping	2.74 (0.82)	1.70 (0.35)	1.65 (0.51)	2.57 (0.86)
EF Coping	2.73 (0.95)	1.55 (0.45)	2.78 (1.34)	2.63 (0.99)
Disengagement Coping	2.66 (0.85)	3.40 (0.60)	3.28 (0.70)	2.77 (0.85)
"Initial Arousal"	2.86 (0.97)	1.64 (0.56)	2.83 (1.53)	2.75 (1.03)
"Long-Term" Arousal	1.71 (0.83)	1.07 (0.12)	1.67 (0.77)	2.38 (1.07)
EFD-PF Coping	0.66 (0.04)	0.74 (0.03)	0.79 (0.05)	0.68 (0.06)
"Initial" EFD-PF Coping	0.66 (0.06)	0.61 (0.05)	0.76 (0.05)	0.67 (0.07)
"Short-Term" EFD-PF Coping	0.66 (0.05)	0.76 (0.10)	0.80 (0.06)	0.68 (0.07)
"Long-Term" EFD-PF Coping	0.66 (0.06)	0.83 (0.04)	0.78 (0.06)	0.69 (0.08)

Table 11

Model Comparisons for EFD-PF Coping

	β	Z	POV
Model A. Depression as Outcome (N=84)			
Changes in Emotional Arousal			.07
Gender	0.22	**2.04**	
Parent Education	-0.05	-0.61	
Race	0.06	0.52	
EFD-PF Coping	0.13	0.98	
Depression			.31
Gender	-0.27	**-3.10**	
Parent Education	0.11	0.92	
Race	0.00	0.04	
EFD-PF Coping	0.40	**4.27**	
Changes in Emotional Arousal	-0.25	**-2.93**	
Model B. Depression as Moderator (N=84)			
Change in Emotional Arousal			.16
Gender	0.11	1.02	
Parent Education	-0.00	-0.05	
Race	0.05	0.46	
EFD-PF Coping	0.26	***1.89***	
Depression	-0.29	**-2.28**	
EFD-PF * Depression	-0.11	-1.11	
Model C. Previous Depression as Predictor (N=78)			
EFD-PF Coping			.06
Gender	0.07	0.64	
Parent Education	-0.06	-0.48	
Race	0.01	0.11	
Previous Depression	0.24	**2.06**	
Changes in Emotional Arousal			.13
Gender	0.28	**2.61**	
Parent Education	-0.09	-1.03	
Race	0.09	0.81	
Previous Depression	-0.17	-1.30	
EFD-PF Coping	0.03	0.29	

Note. POV= percent of variance explained. Standardized parameter estimates are reported. **Bold** = $p < .05$; ***Bold Italics*** = $p < .10$

Figure 1. High School Transition Study: Design overview

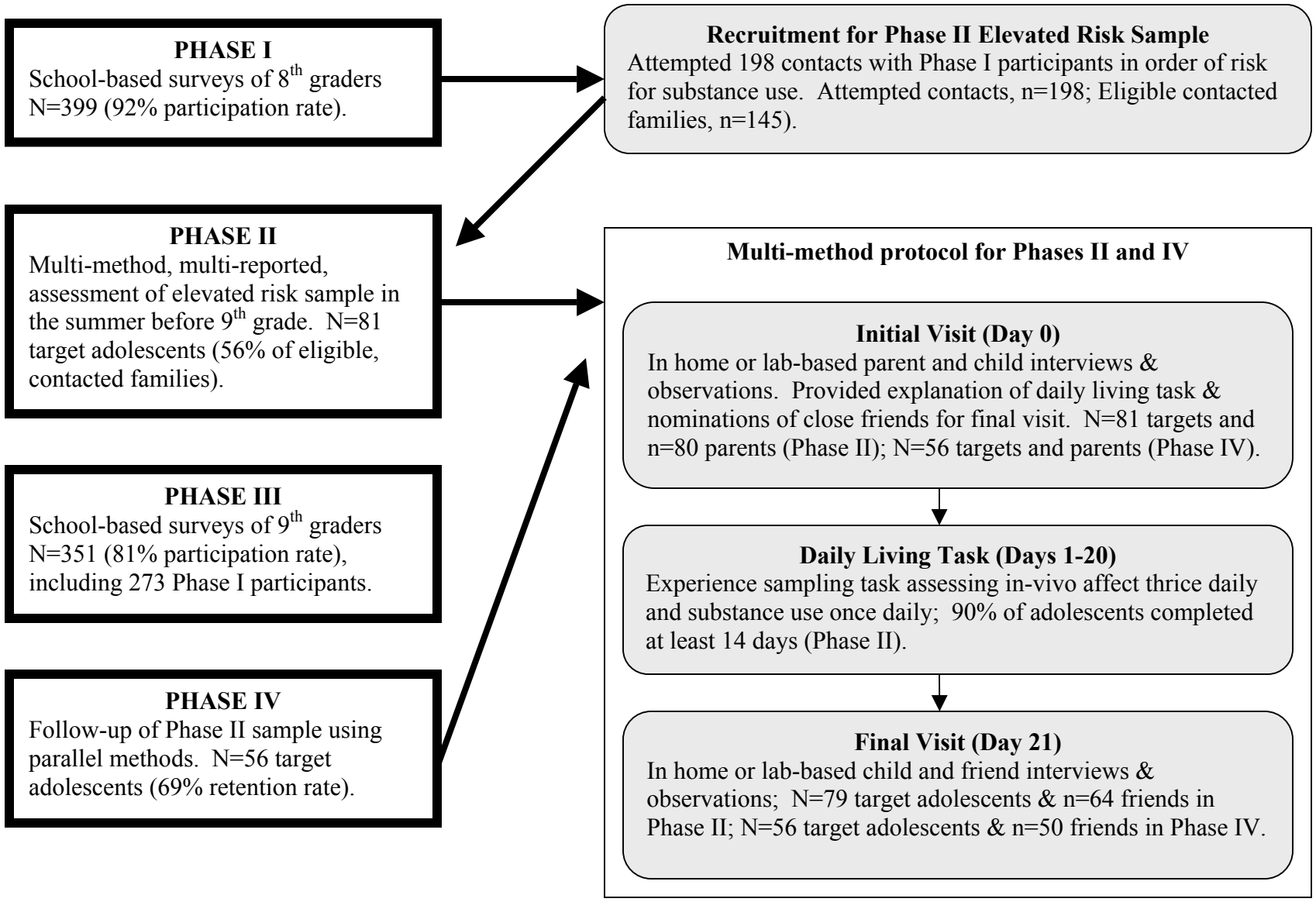


Figure 2. Diagram of the Adolescent Coping Process Interview (ACPI)

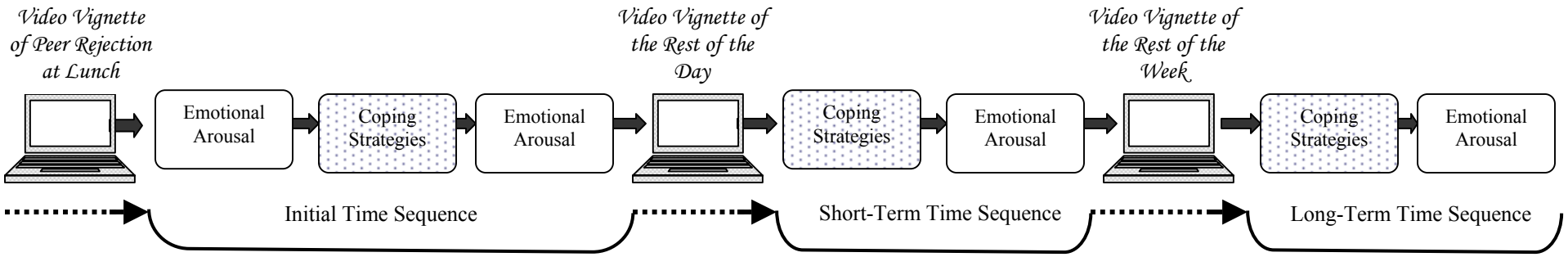


Figure 3. Example of Residualized Change Path Models

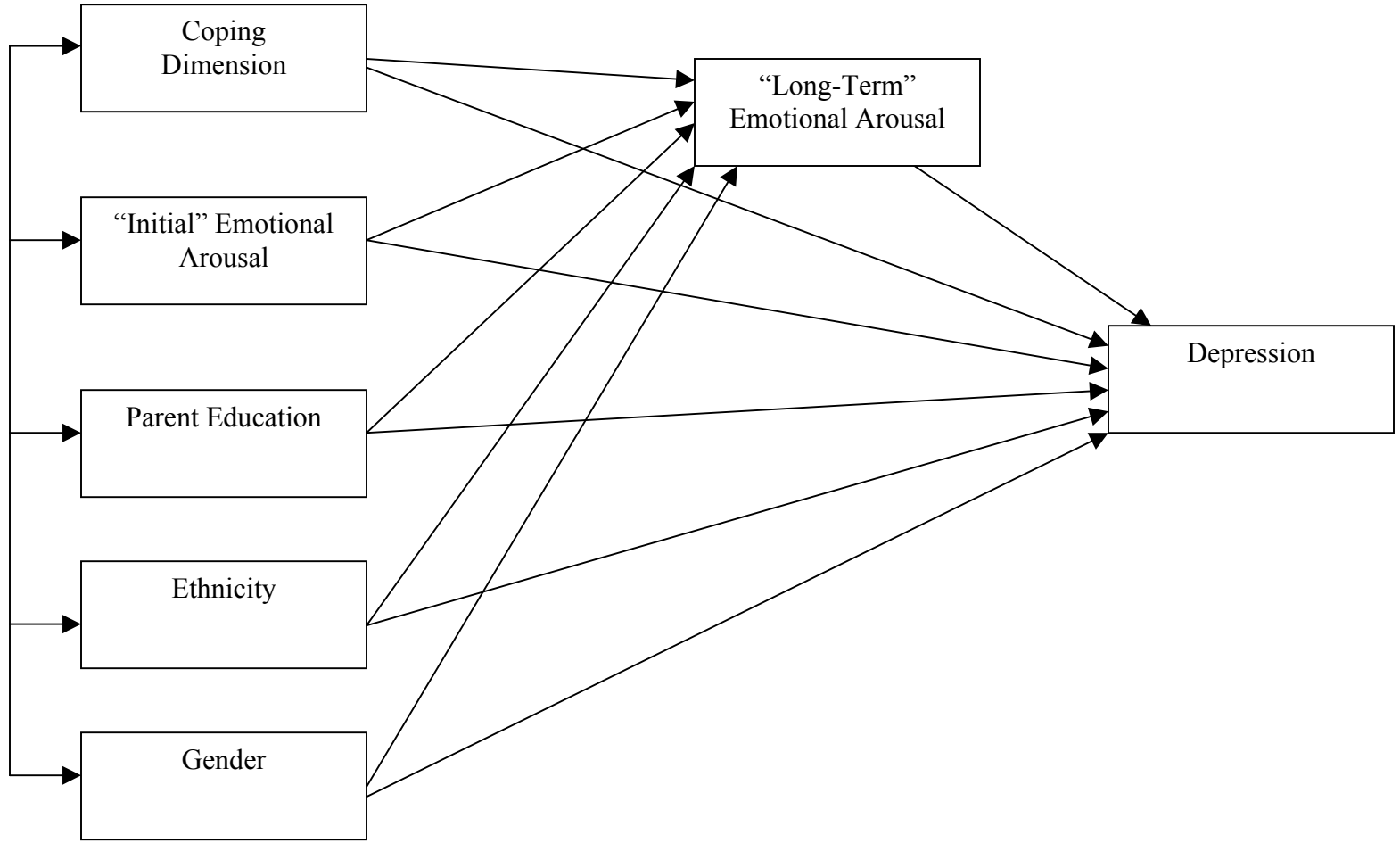
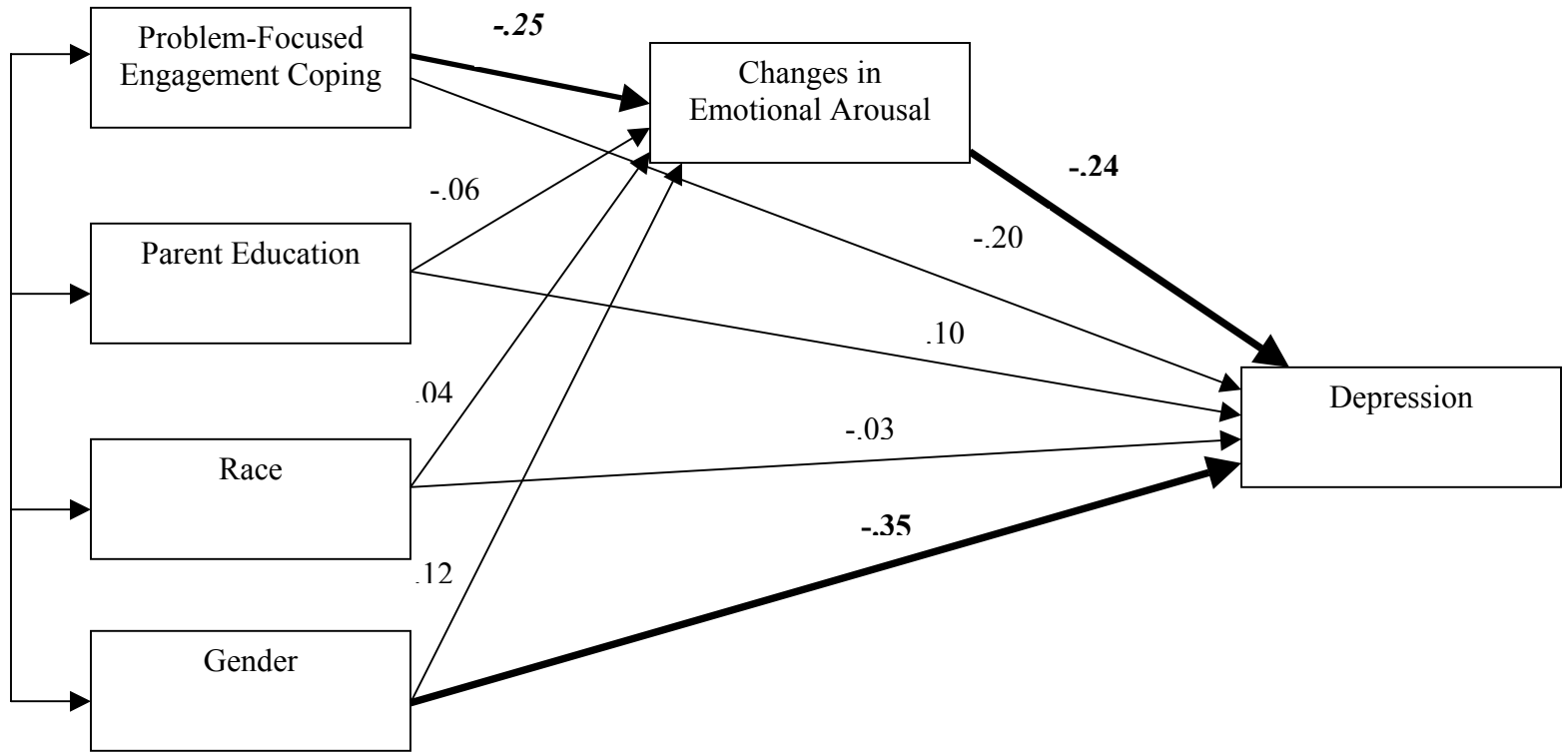
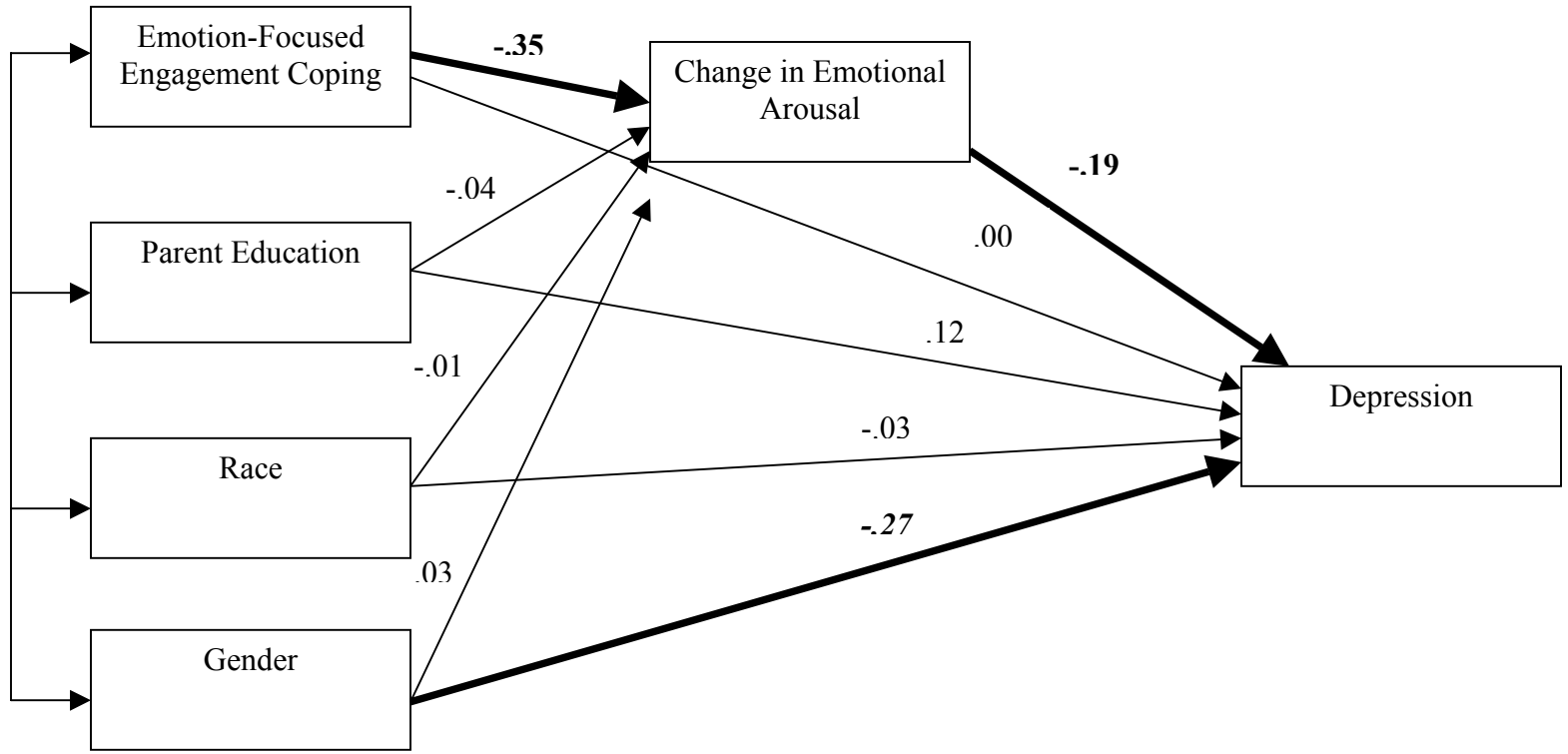


Figure 4. Raw change score path model for Hypothesis 1



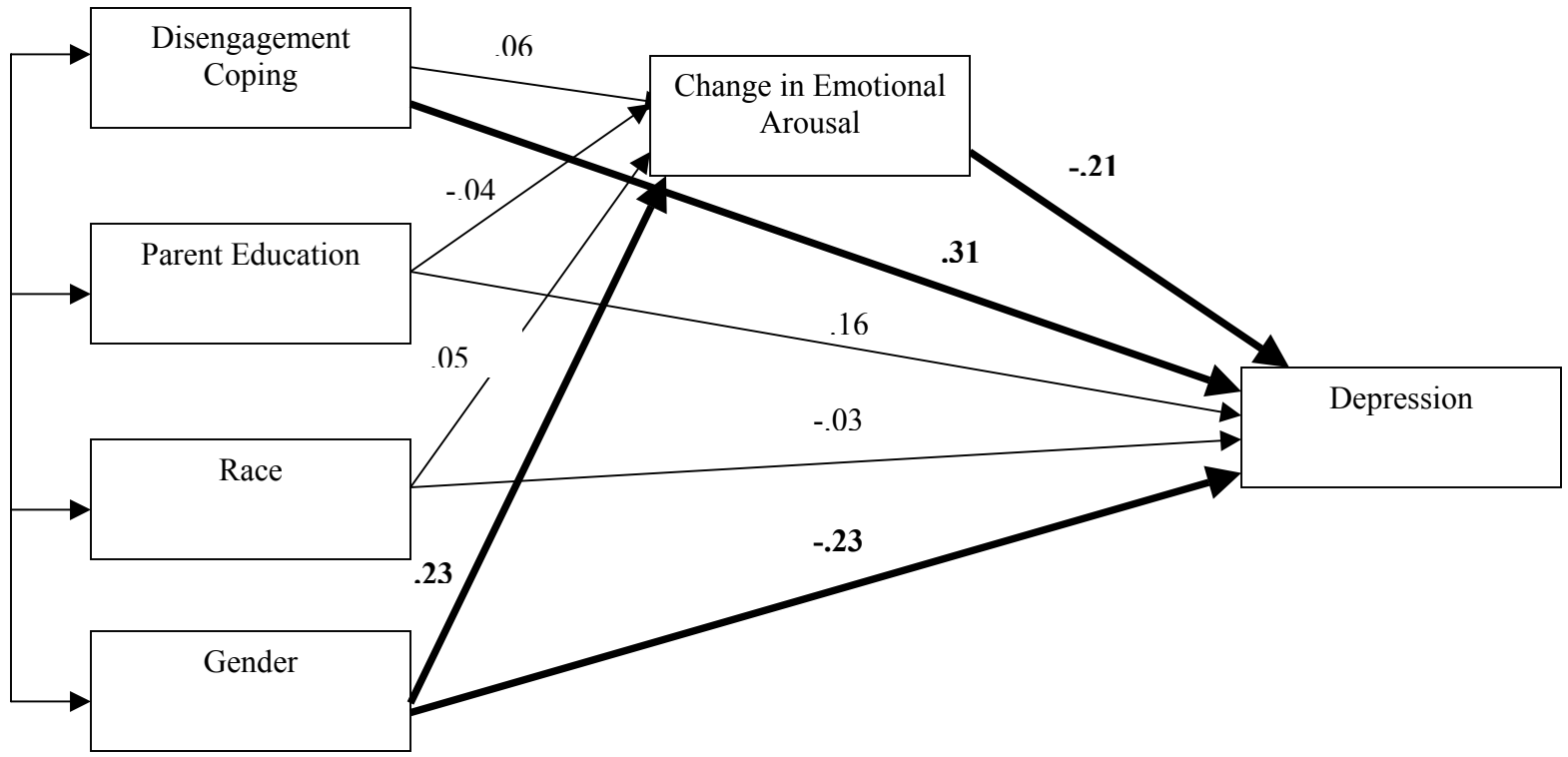
Note. Standardized parameter estimates are reported. **Bold** = $p < .05$; ***Bold Italics*** = $p < .10$

Figure 5. Raw change score path model for Hypothesis 2



Note. Standardized parameter estimates are reported. **Bold** = p < .05; ***Bold Italics*** = p < .10

Figure 6. Raw change score path model for Hypothesis 3



Note. Standardized parameter estimates are reported. **Bold** = p < .05; ***Bold Italics*** = p < .10

Figure 7. Conceptual model of proposed theoretical groupings for coping across sequence

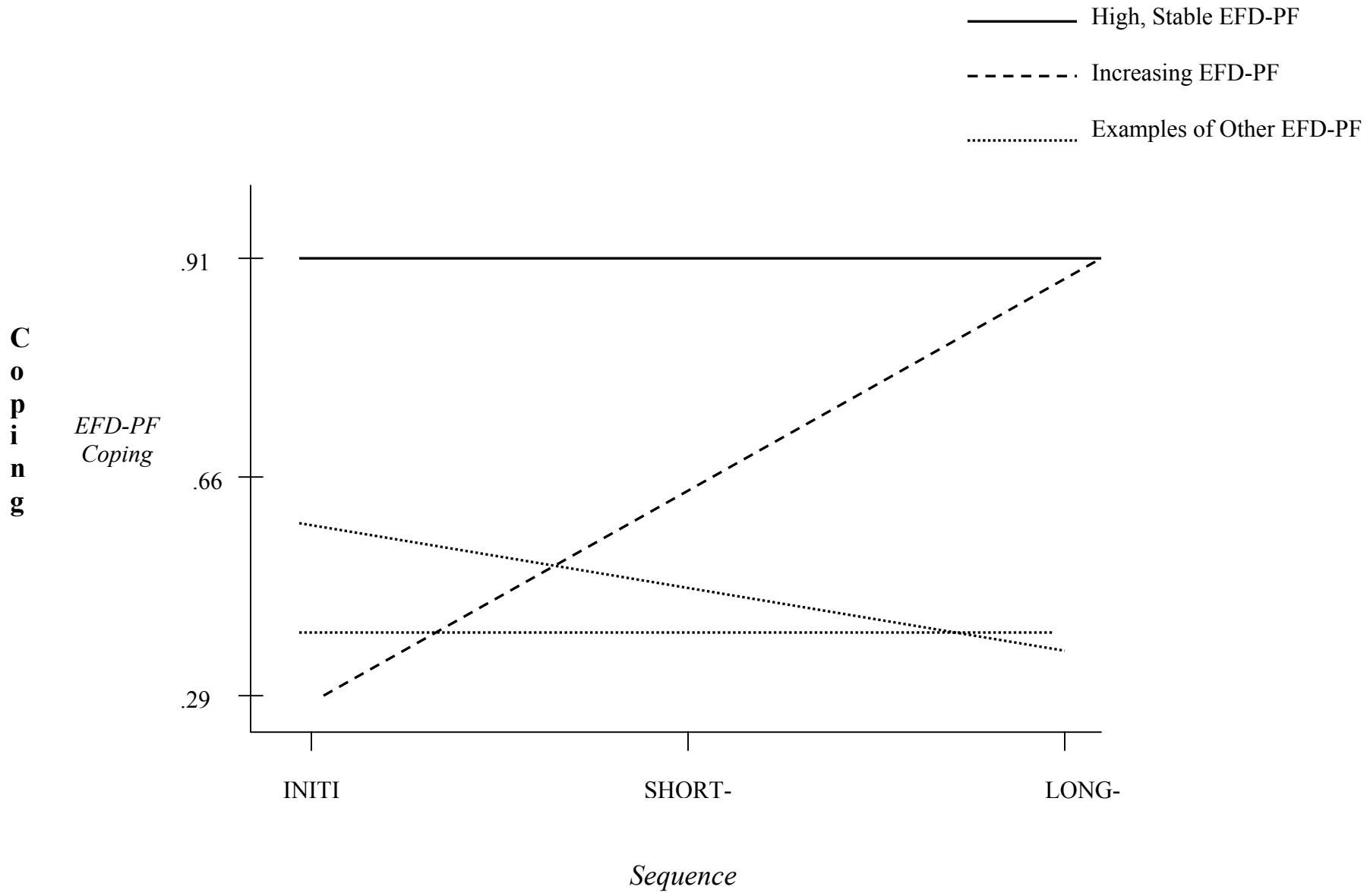


Figure 8. Plot of individual EFD-PF coping trajectories across sequence

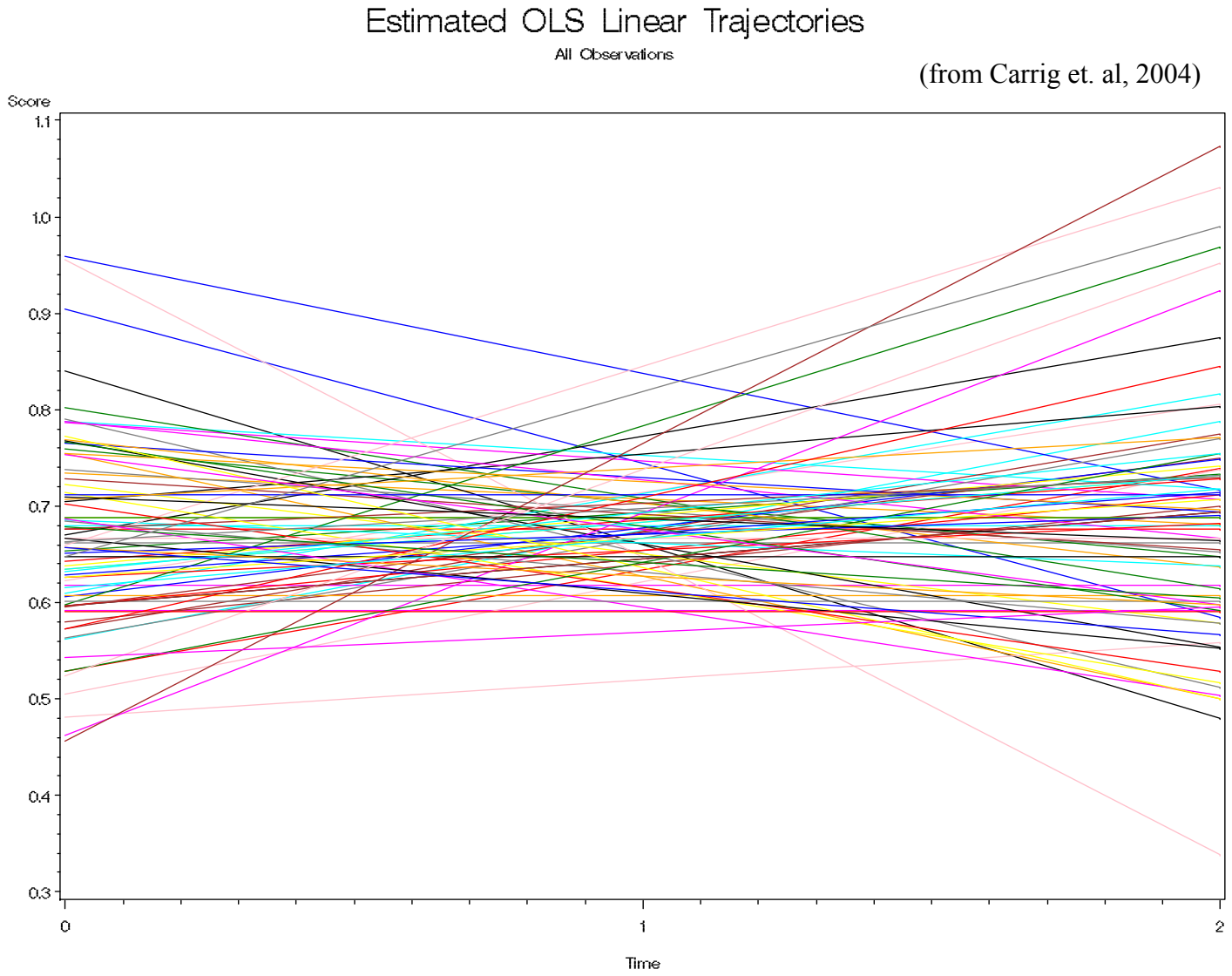


Figure 9. Trajectories of emotional arousal and PF coping by EFD-PF groupings

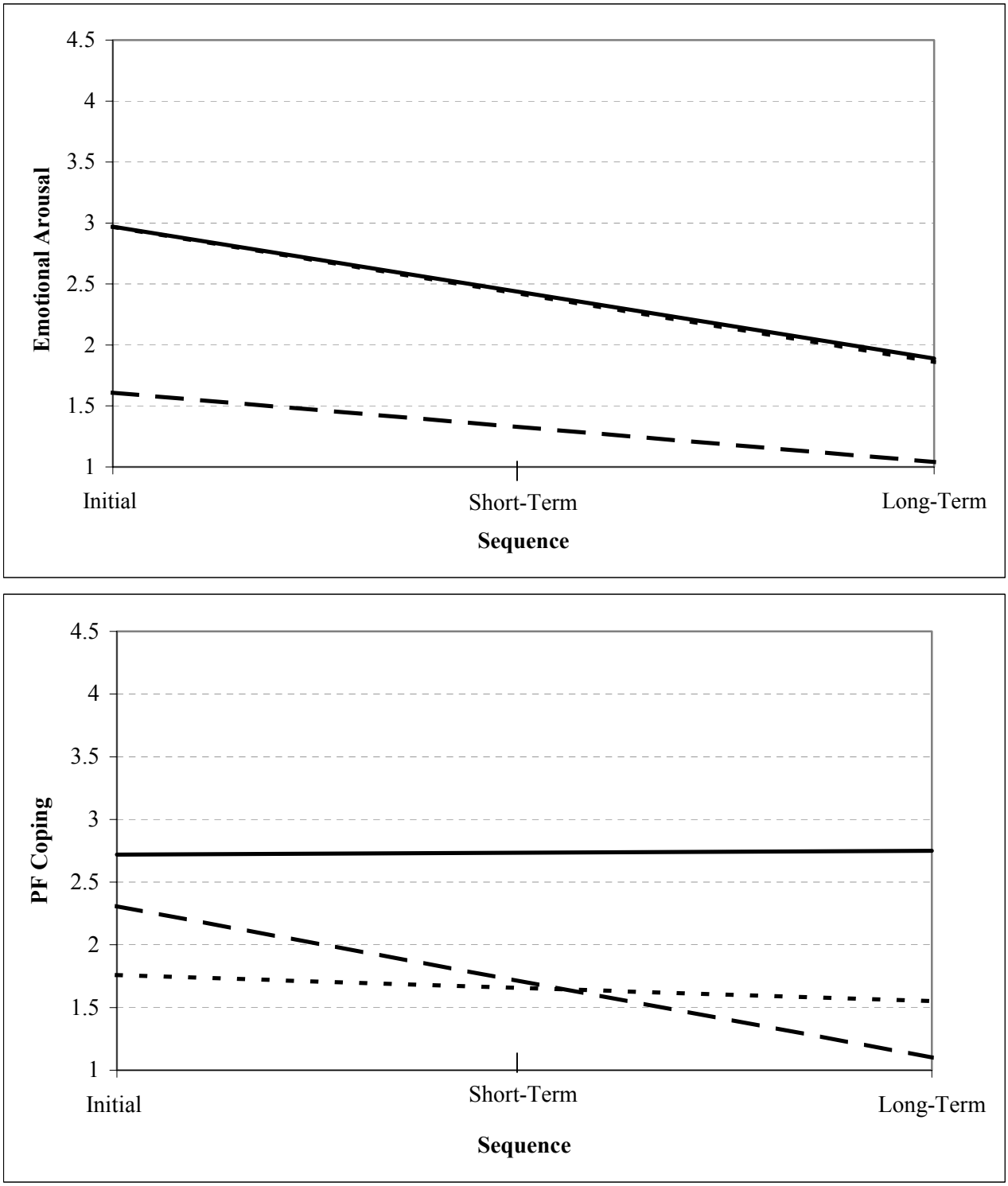


Figure 10. Trajectories of disengagement coping and EF coping by EFD-PF groupings

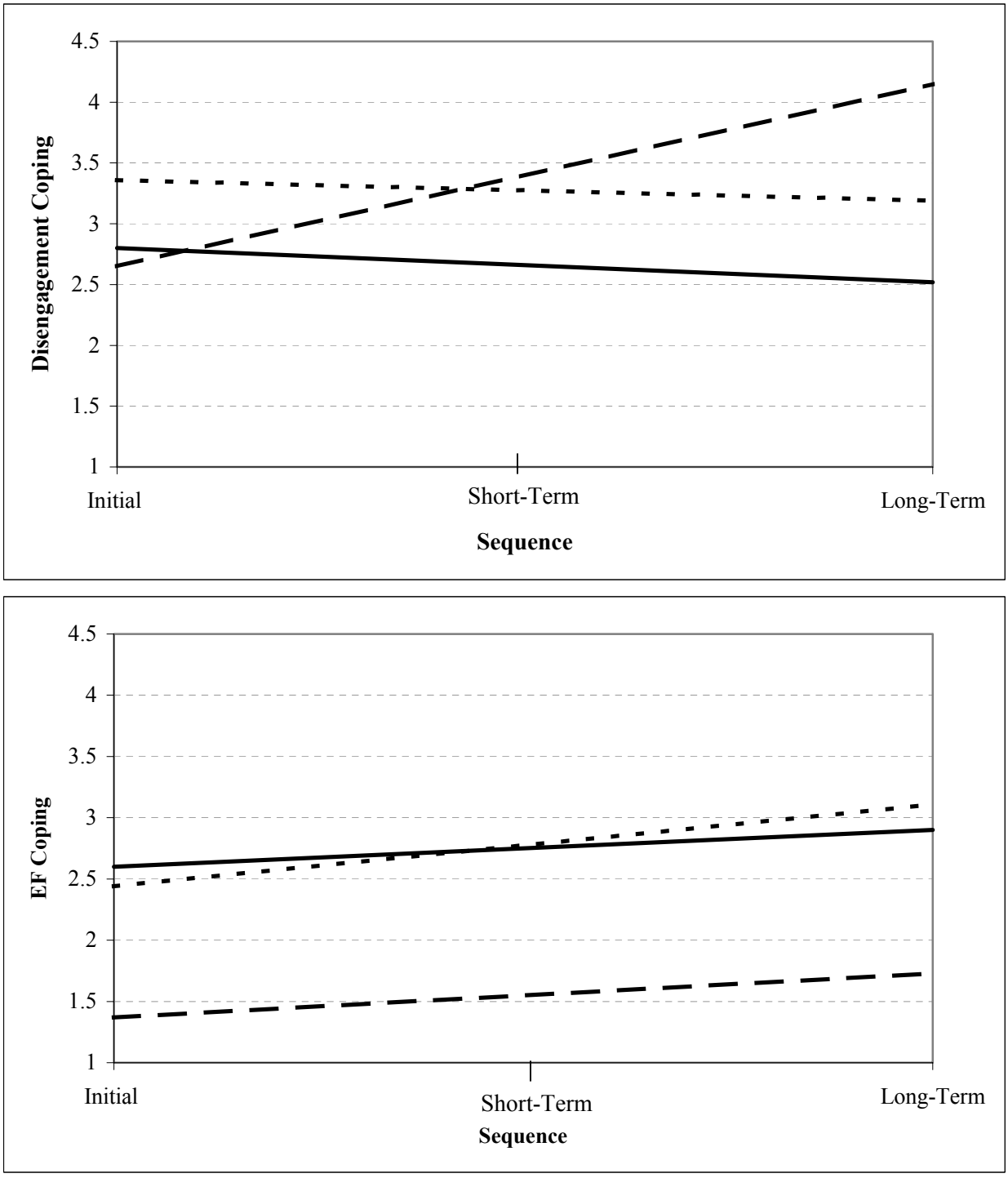
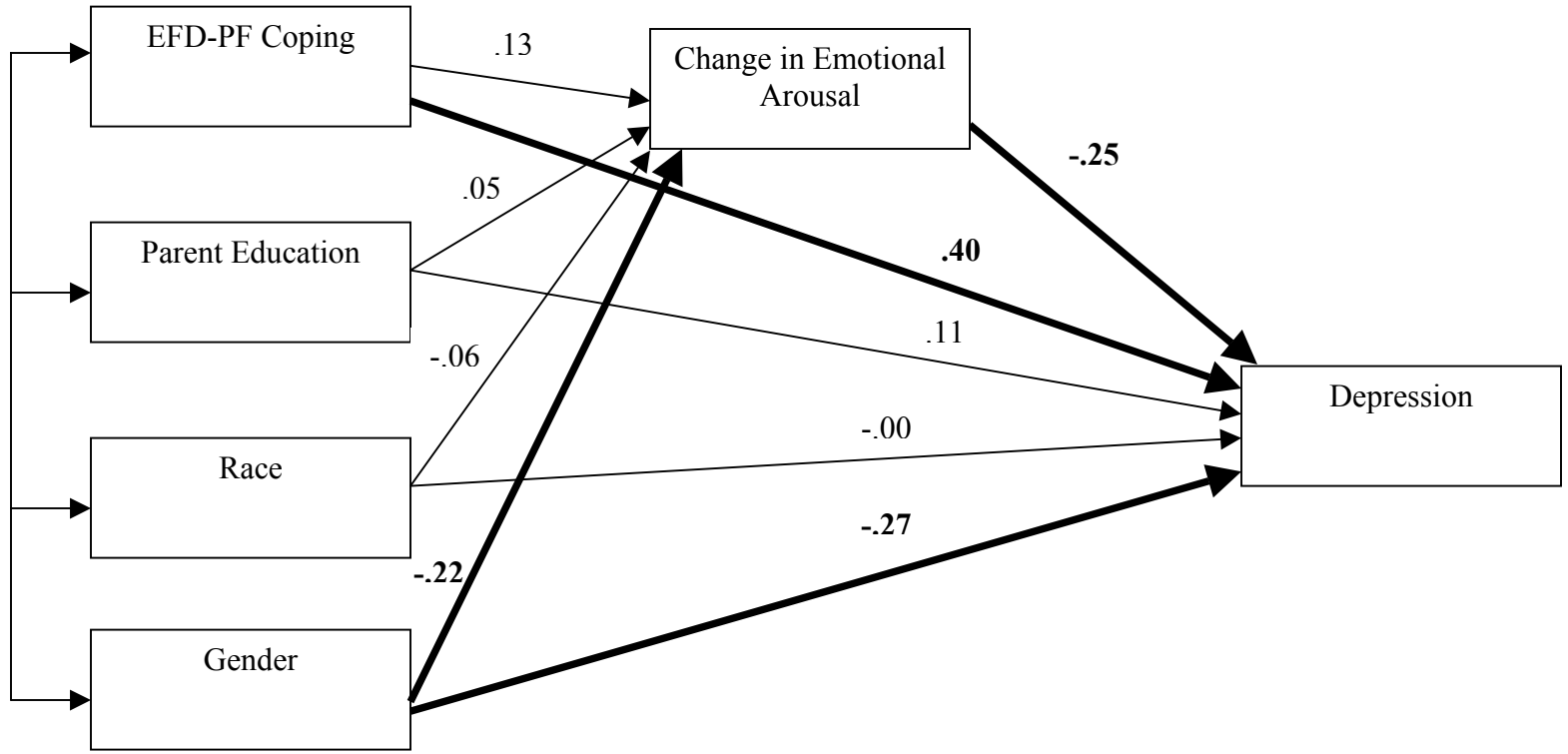
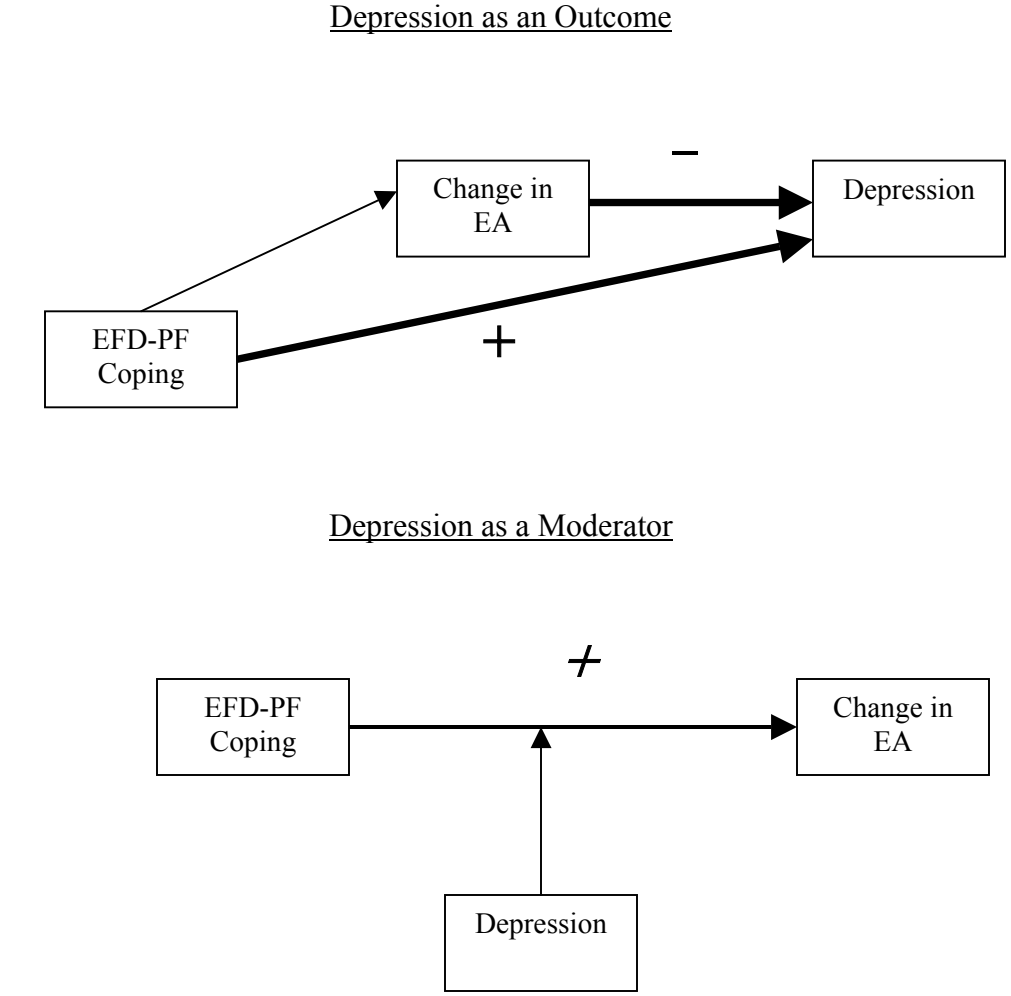


Figure 11. Change in emotional arousal as a mediator of the EFD-PF coping-depression relationship



Note. Standardized parameter estimates are reported. **Bold** = p < .05; ***Bold Italics*** = p < .10

Figure 12. Summary of significant pathways for revisited model and alternative models



Note. Plus signs indicate significant positive parameters, negative signs indicate significant negative parameters

APPENDICES

APPENDIX A

The Adolescent Coping Process Interview

In the tasks you'll do today, we are interested in seeing how teenagers deal with events that are stressful to them. For this task, I am going to show you a brief video of a problem hat might happen between you and your friends. During the video, pretend you are experiencing this event and imagine how you would deal with the same problem if it was happening to you. After you watch the video, I will ask you some questions about how you think you would deal with this problem. Any questions?

So I want you to picture the cafeteria in school and a table some of your close friends might hang out at. Imagine what else might go on in the cafeteria as you sit down to have lunch and overhear the conversation your friends are having about the party to which you were not invited.

Now I'd like you to take 5 - 10 seconds and imagine that this has happened to you.

Q: T6CINAP1
So, let's say this happened to you. How much...control do you think you had over what happened?
1) None
2) A little
3) Some
4) Very much
5) A lot

Q: T6CINAP2
Again, pretend that this just happened to you. How...stressed are you feeling over what happened?
1) Not at all
2) A little
3) Somewhat
4) Very much
5) Extremely

Q: T6CINAP3
How...worried are you feeling over what happened?
1) Not at all
2) A little
3) Somewhat
4) Very much
5) Extremely

Q: T6CINAP4
How...sad are you feeling over what happened?
1) Not at all
2) A little
3) Somewhat
4) Very much
5) Extremely

Q: T6CINAP5
How...mad are you feeling over what happened?
1) Not at all
2) A little
3) Somewhat
4) Very much
5) Extremely

Now think about how you might initially respond to the problem. So, you have just overheard your friends talking about the party you weren't invited to, and they have continued to rave about how awesome it was during the rest of the lunch period.

I'd like you to take 5 - 10 seconds and think about what your thoughts and actions might be through the rest of the lunch period.

Now, mark how likely you were to do each of the following responses - from the time you find out you were not invited to the party until the bell rings at the end of the lunch period.

Q: T6CINR1
So, throughout the lunch period, I avoided how I was feeling. (For example, I tried to forget about it.)
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CINR2
Throughout the lunch period, I tried to understand the situation to figure out why it happened. (For example, I thought about why I might not have been included.)

1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CINR3
Throughout the lunch period, I made a plan of action to fix the situation. (For example, I thought about ways I could become more included in the group.)
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CINR4
Throughout the lunch period, I got up to move away from the situation to calm down. (For example, I got up and moved to another lunch table.)
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CINR5
Throughout the lunch period, I got support from someone I'm close to so I could feel better. (For example, I went to talk to a friend to get sympathy.)
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CINR6
Throughout the lunch period, I talked directly about the situation to others who were involved. (For example, I asked my classmates at the lunch table if they could stop laughing.)
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CINR7
Throughout the lunch period, I tried to improve things about me so I could handle the situation better. (For example, I worked on handling the situation in an adult-like manner.
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely

5) Extremely likely
Q: T6CINR8
Throughout the lunch period, I tried to rethink the situation to feel better. (For example, I tried to think about the situation in a different way.)
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CINR9
Throughout the lunch period, I talked to others for advice on how to handle the situation. (For example, towards the end of lunch I asked another friend what I should do.)
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CINR10
Throughout the lunch period, I vented my feelings and frustrations to feel better. (For example, I started to complain about not being included.)
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CINR11
Throughout the lunch period, I just accepted things. (For example, I realized that's just the way things are.)
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CINR12
If you did something else in response to the situation that has not yet been mentioned, please type in your response below. If not, please proceed to the next screen by clicking Next.

So imagine that you have done some of the items you just indicated to deal with not being included. Now, it's the end of the lunch period.

So, take 5 -10 seconds and think about how you're feeling.

Q: T6CSAP2
At the end of the lunch period, how...stressed are you feeling?
1) Not at all
2) A little
3) Somewhat
4) Very much
5) Extremely

Q: T6CSAP3
At the end of the lunch period, how...worried are you feeling?
1) Not at all
2) A little
3) Somewhat
4) Very much
5) Extremely

Q: T6CSAP4
At the end of the lunch period, how...sad are you feeling?
1) Not at all
2) A little
3) Somewhat
4) Very much
5) Extremely

Q: T6CSAP5
At the end of the lunch period, how...mad are you feeling?
1) Not at all
2) A little
3) Somewhat
4) Very much
5) Extremely

Okay, now let's watch the video to see what happens next.

So at the end of the day, you are getting ready for bed, and I want you to think about all the things that have happened during the day and how the situation may or may not have changed at this point.

Take a few seconds to think about what you do to deal with not being included - from the end of lunch to the time you go to bed.

Now, mark how likely you were to do each of the following responses - from the end of lunch to the time you are getting in bed.

Q: T6CSTR1
So, throughout the rest of the day, I avoided how I was feeling.
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CSTR2
Throughout the rest of the day, I tried to understand the situation to figure out why it happened.
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CSTR3
Throughout the rest of the day, I made a plan of action to fix the situation.
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CSTR4
Throughout the rest of the day, I got up to move away from the situation to calm down.
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CSTR5
Throughout the rest of the day, I got support from someone I'm close to so I could feel better.
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CSTR6
Throughout the rest of the day, I talked directly about the situation to others who were involved.
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CSTR7
Throughout the rest of the day, I tried to improve things about me so I could handle the situation better.
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CSTR8
Throughout the rest of the day, I tried to rethink the situation to feel better.
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CSTR9
Throughout the rest of the day, I talked to others for advice on how to handle the situation.
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CSTR10
Throughout the rest of the day, I vented my feelings and frustrations to feel better.
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CSTR11
Throughout the rest of the day, I just accepted things.
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CSTR12
If you did something else in response to the situation that has not yet been mentioned, please type in your response below. If not, please proceed to the next screen by clicking Next.

So imagine that you have done some of the items you just indicated to deal with not being included. Now, you are going to bed.

So, take a few seconds to think about how you're feeling.

Q: T6CSTAP2
As you are going to bed, how...stressed are you feeling?
1) Not at all
2) A little
3) Somewhat
4) Very much
5) Extremely

Q: T6CSTAP3
As you are going to bed, how...worried are you feeling?
1) Not at all
2) A little
3) Somewhat
4) Very much
5) Extremely

Q: T6CSTAP4
As you are going to bed, how...sad are you feeling?
1) Not at all
2) A little
3) Somewhat
4) Very much
5) Extremely

Q: T6CSTAP5
As you are going to bed, how...mad are you feeling?
1) Not at all
2) A little
3) Somewhat
4) Very much
5) Extremely

Okay, let's return to the video to see what's happening now.

Now imagine yourself getting up the next morning and going through the rest of the week like you just saw. Think about all the things that might have happened during the rest of the week, like going to classes, getting picked up from school, and doing your normal weekly activities.

Take a few seconds to imagine what you do to deal with the situation - from the time you got up the morning after the lunchroom incident occurred through the remainder of the week.

Now, mark how likely you were to do each of the following responses - throughout the rest of the week.

Q: T6CLTR1
So, throughout the rest of the week, I avoided how I was feeling.
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CLTR2
Throughout the rest of the week, I tried to understand the situation to figure out why it happened.
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CLTR3
Throughout the rest of the week, I made a plan of action to fix the situation.
1) Not at all likely
2) A little likely
3) Somewhat likely

4) Very much likely
5) Extremely likely

Q: T6CLTR4
Throughout the rest of the week, I got up to move away from the situation to calm down.
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CLTR5
Throughout the rest of the week, I got support from someone I'm close to so I could feel better.
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CLTR6
Throughout the rest of the week, I talked directly about the situation to others who were involved.
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CLTR7
Throughout the rest of the week, I tried to improve things about me so I could handle the situation better.
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CLTR8
Throughout the rest of the week, I tried to rethink the situation to feel better.
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CLTR9
Throughout the rest of the week, I talked to others for advice on how to handle the situation.
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CLTR10
Throughout the rest of the week, I vented my feelings and frustrations to feel better.
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CLTR11
Throughout the rest of the week, I just accepted things.
1) Not at all likely
2) A little likely
3) Somewhat likely
4) Very much likely
5) Extremely likely

Q: T6CLTR12
If you did something else in response to the situation that has not yet been mentioned, please type in your response below. If not, please proceed to the next screen by clicking Next.

So imagine that you have done some of the items you just indicated to deal with not being included. It's now one week later after the lunchroom incident.

So, take a few seconds to think about how you're feeling.

Q: T6CLTAP2
One week later, how...stressed are you feeling?
1) Not at all
2) A little
3) Somewhat
4) Very much
5) Extremely

Q: T6CLTAP3
One week later, how...worried are you feeling?
1) Not at all
2) A little
3) Somewhat
4) Very much
5) Extremely

Q: T6CLTAP4
One week later, how...sad are you feeling?
1) Not at all
2) A little
3) Somewhat
4) Very much
5) Extremely

Q: T6CLTAP5
One week later, how...mad are you feeling?
1) Not at all
2) A little
3) Somewhat
4) Very much
5) Extremely

Q: T6CLTAP6
Overall, how well have you dealt with the problem at this point?
1) Not well at all
2) A little well
3) Somewhat well
4) Very much well
5) Extremely well

Okay, that was the end of the interview. What the interview was trying to capture is how teenagers cope with stressful situations.

Q: T6CLTAP7
Were your answers typical of how you would handle a situation like this?
1) Not at all
2) A little
3) Somewhat
4) Very much
5) Extremely

Thank you for completing our interview today!

APPENDIX B

Depression Measure (SMFQ-C)

The next sentences are about how you might have been feeling or acting IN THE PAST THREE MONTHS. If a sentence was true about you most of the time, mark true. If it was only sometimes true, mark sometimes true. If a sentence was not true of you, mark not true.

Q: t6dep1
In the past 3 weeks...I felt miserable or unhappy.
2) True
1) Sometimes
0) Not True

Q: t6dep2
In the past 3 weeks...I didn't enjoy anything at all.
2) True
1) Sometimes
0) Not True

Q: t6dep3
In the past 3 weeks...I felt so tired I just sat around and did nothing.
2) True
1) Sometimes
0) Not True

Q: t6dep4
In the past 3 weeks...I was very restless.
2) True
1) Sometimes
0) Not True

Q: t6dep5
In the past 3 weeks...I felt I was no good any more.
2) True
1) Sometimes
0) Not True

Q: t6dep6
In the past 3 weeks...I cried a lot.
2) True
1) Sometimes
0) Not True

Q: t6dep7
In the past 3 weeks...I found it hard to think properly or concentrate.
2) True
1) Sometimes
0) Not True

Q: t6dep8
In the past 3 weeks...I hated myself.
2) True
1) Sometimes
0) Not True

Q: t6dep9
In the past 3 weeks...I was a bad person.
2) True
1) Sometimes
0) Not True

Q: t6dep10
In the past 3 weeks...I felt lonely.
2) True
1) Sometimes
0) Not True

Q: t6dep11
In the past 3 weeks...I thought nobody really loved me.
2) True
1) Sometimes
0) Not True

Q: t6dep12
In the past 3 weeks...I thought I could never be as good as other kids.
2) True
1) Sometimes
0) Not True

Q: t6dep13
In the past 3 weeks...I did everything wrong.
2) True
1) Sometimes
0) Not True

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