

## **Adolescent stress and coping: implications for psychopathology during adolescence**

BRUCE E. COMPAS, PAMELA G. OROSAN  
AND KATHRYN E. GRANT

Stressful experiences and efforts to cope with stress are central to understanding psychological distress and psychopathology during adolescence. Depressive phenomena during adolescence offer a particularly interesting opportunity for understanding the role of stress and coping processes in adolescent psychopathology. Research concerned with stress and coping during adolescence is reviewed, using depression as a key example of a consequence of stress and coping processes. Based on this research, it is hypothesized that exposure to and appraisals of interpersonal stress combine with aspects of biological development and the use of maladaptive coping strategies to account for the emergence of significant gender differences in depression and other forms of psychopathology during adolescence. Directions for future research in this area are highlighted.

### INTRODUCTION

Stress is a pervasive feature of human development throughout the lifespan, and the adolescent period is certainly no exception. Stressful experiences of both an acute and a chronic nature are important in the course of normal as well as disrupted development during adolescence. Moreover, the role of stressful experiences in adolescent development depends on the ways in which individuals attempt to cope with stress and adversity. Adaptive coping responses may reduce some stressful experiences to the level of momentary disruptions while other patterns of coping may exacerbate stress and contribute to long-term, pervasive negative outcomes.

Stressful events and coping efforts play important roles in the onset and maintenance of a wide range of psychological distress and psychopathology during adolescence (Compas *et al.*, unpublished manuscript). Depressive phenomena, including depressed mood, syndromes and disorders, are especially important correlates of adolescent stress and coping

Reprint requests and correspondence should be addressed to Bruce E. Compas, Department of Psychology, University of Vermont, Burlington, VT 05045, U.S.A.

for several reasons. First, depressive phenomena increase substantially during the adolescent years and the divergence in rates of depression for females and males during adolescence is dramatic (Petersen *et al.*, 1993). Second, stress is clearly linked to adolescent depression, although gender differences in adolescent depression do not appear to be due to differences in stress alone (Compas *et al.*, In Press). Third, the study of depressive phenomena during adolescence is important because of the high rates of covariation of depressive symptoms with other symptoms and problem behaviors, and the high rates of comorbidity of depression with other disorders (Compas and Hammen, In Press). These high rates of covariation and comorbidity suggest that what is true for the relations of stress and coping processes with depression may be true for other types of psychopathology during adolescence as well.

*One implication of prior studies of adolescent stress and psychopathology* is that stressful experiences alone may be insufficient to explain negative mental health outcomes during adolescence. Coping processes that are used in response to stress may be important in understanding psychopathology during this developmental period and during later development as well. Gender differences in both exposure to stress and in coping with stress may be especially important for understanding differences between boys and girls in depressive phenomena and other forms of psychopathology during adolescence.

To address these issues we first briefly review several salient issues concerning psychopathology during adolescence, giving particular attention to depressive phenomena. Second, we summarize findings regarding the relation between stressful experiences and psychopathology during adolescence. Third, we review recent studies on developmental patterns in coping during adolescence, followed by a description of recent research on gender differences in coping that may have important implications for understanding the association between stress and adolescent depression and other forms of psychopathology. Finally, we will outline directions for future research that could further clarify the intriguing patterns of relations among stress, coping, and psychopathology during adolescence.

## PSYCHOPATHOLOGY DURING ADOLESCENCE

Psychological distress and psychopathology during adolescence can be distinguished at three levels that involve: (a) distressed mood; (b) empirically derived syndromes; and (c) categorical disorders (e.g. Angold, 1988;

Kovacs, 1989; Cantwell and Baker, 1991). At the level of mood, psychological distress is typically conceptualized in terms of feelings of anger, fear, sadness, unhappiness or dysphoria. In considering distressed mood, no assumptions are made about the presence of other symptoms that may characterize more severe manifestations of psychopathology. Syndromes encompassing a wide range of symptoms have been identified in multivariate empirical research on the nature of child and adolescent psychopathology. For example, a syndrome comprised of Anxious/Depressed symptoms identified by Achenbach (1991) is a clear example of an identifiable depressive syndrome in adolescence. Finally, disorders are reflected in categorical diagnostic systems, such as the Diagnostic and Statistical Manual (DSM-III-R) of the American Psychiatric Association (1987). Focusing on depressive phenomena as an example, Compas *et al.* (1993) have proposed that these three levels are related in a hierarchical and sequential manner. A large proportion of adolescents experience depressed mood, with a subgroup of these adolescents manifesting a depressive syndrome and a smaller subgroup manifesting a depressive disorder (Compas *et al.*, 1993). A similar hierarchical pattern may apply to other forms of distress and disorder as well.

When considering psychopathology during adolescence, it is essential to attend to developmental processes and patterns. This is especially true with regard to depressive phenomena, as depressed mood, depressive syndromes and depressive disorders all follow a predictable developmental course, increasing substantially during the adolescent years (Petersen *et al.*, 1993). At the level of depressed mood, by early adolescence significant proportions of youths report sad, unhappy or dysphoric mood (e.g. Kandel and Davies, 1982; Rutter, 1986; Petersen *et al.*, 1991; Roberts *et al.*, 1991) with estimates across these studies ranging from approximately 15% to 60%, depending on the method used to assess depressed mood and on the age and gender of the participants. Significant gender differences emerge in the expression of depressed mood in adolescence, with girls reporting higher rates than boys from early adolescence onward (e.g. Kandel and Davies, 1982; Allgood-Merten *et al.*, 1990; Petersen *et al.*, 1991). Depressive disorders also emerge as a significant problem during adolescence. In contrast to the relatively low rates of clinical depression in children, rates of depressive disorders in adolescence increase dramatically and approach the rates found in adults. Several studies indicate a significant increase in adolescent depression compared to childhood depression (e.g. Kashani and Simonds, 1979; Rutter, 1986; Kashani *et al.*, 1989).

All forms of psychopathology in adolescence are complicated by the high degree of covariation and comorbidity among different symptoms,

syndromes, and disorders. Once again, depressive phenomena offer a particularly salient example (Compas and Hammen, In Press). At the level of depressed mood, a number of studies have shown that although children and adolescents clearly experience sad or unhappy mood, depressed mood is rarely experienced in the absence of other negative emotions. Studies relying on a single method of measuring negative mood, such as adolescents' self-reports, have failed to distinguish depressed mood from other negative emotions including anxiety, anger, and hostility (e.g. Saylor *et al.*, 1984). Further, studies examining reports from different informants (e.g. adolescents, teachers, parents) of various negative emotions (depression, anxiety, anger) have failed to establish the discriminant validity of measures of depressed mood. That is, reports of adolescent depressed mood by each informant are correlated more highly with reports of other negative emotions by that same informant than they are correlated with reports of depressed mood obtained by other informants (e.g. Wolfe *et al.*, 1987; Finch *et al.*, 1989). Finch *et al.* (1989) suggest that anxiety and depression are not separable in children and adolescents and that the distinction between these two forms of negative affect is not viable. Thus, negative affectivity is a broad construct that captures distressed mood during adolescence.

The intercorrelations of the Anxious/Depressed core syndrome identified by Achenbach (1991) with the other core syndromes reflect substantial levels of covariation. These correlations have been reported separately for the Child Behavior Checklist (CBCL), Teacher Report Form (TRF), and Youth Self-Report (YSR) for clinically referred and nonreferred adolescent boys and girls (Achenbach, 1991). Although these correlations vary substantially (ranging from  $r = 0.27$  to  $r = 0.80$ ), the overall mean correlation of the Anxious/Depressed syndrome with the other core syndromes is  $r = 0.48$ , indicating substantial covariation. Further, the Anxious/Depressed syndrome is highly correlated with both internalizing syndromes (Withdrawn, Somatic Complaints) and externalizing syndromes (Aggressive, Attention Problems). The degree of covariation among other syndromes is also high (Achenbach, 1991).

With respect to depressive disorders during adolescence, it is safe to say that comorbidity is the rule rather than the exception (Compas and Hammen, In Press). Fleming and Offord (1990), in a review of community epidemiological studies of child and adolescent depression, reported that estimates of comorbidity of depressive disorders with any other disorder ranged from 33% to 100%. Results of a recent survey of over 1700 adolescents in the community found that 42% of adolescents who were diagnosed with a depressive disorder also received a diagnosis for at least one other comorbid condition (Rhode *et al.*, 1991).

## ADOLESCENT STRESS

*Defining stress*

Few constructs in research on mental health and psychopathology have been as important but at the same time as difficult to define as the concept of "stress". Numerous definitions have emerged over the years, some of which have been so broad or difficult to operationalize as to render them useless for the purpose of scientific inquiry (Lazarus, 1990). That stress continues to play a major role in spite of these substantial problems in conceptualization and measurement is testimony to the centrality of this concept to most models of psychopathology.

As a result of confusion surrounding the definition of stress, several different approaches to measuring adolescent stressful experiences have been used. One approach has focused on stress as manifested in discrete environmental events (e.g. loss of a loved one, natural disaster, sudden economic change) that represent measurable changes in the environment (e.g. Holmes and Rahe, 1967). An alternative approach is reflected in transactional models which view stress as a consequence of environmental events and circumstances as they are cognitively appraised or perceived by the individual (e.g. Lazarus and Folkman, 1984). Conceptualizations of stress have also differed in their emphasis on the occurrence of major changes in the individual's life situation that involve significant levels of social readjustment as opposed to ongoing daily transactions with the environment, as reflected in daily hassles, chronic strains or small events. These various approaches to conceptualizing and measuring stress have all been represented in research on adolescent stress (e.g. Coddington, 1972; Compas *et al.*, 1987; Kanner and Feldman, 1991).

A comprehensive perspective on adolescent stress includes both the objective nature of environmental events and conditions as well as individuals' cognitive appraisals of the environment. That is, neither objective nor subjective elements are sufficient alone to understand individual differences in the nature of what is stressful and who is vulnerable to what types of stressful situations. Further, integrative models of adolescent stress have embraced both major and minor stressful events and experiences as interrelated aspects of stress (see below).

*Longitudinal research*

The goal of most researchers in this area has been to determine the degree to which stress functions as a cause, correlate or consequence of psychological distress and psychopathology. Cross-sectional studies are useful in establishing that there is an association between stress and psychological

distress or psychopathology that is worthwhile to pursue in more costly longitudinal investigations. However, cross-sectional designs cannot address temporal relations between stress and psychological distress or psychopathology. Prospective designs are essential to examine the direction of the stress-disorder association — whether stress predicts increases in symptoms of psychopathology and whether symptoms predict increases in stress. In spite of the hope that prospective designs can allow for the inference of causality in these associations, it is important to remember that even prospective designs fail to control for “third variables” that could be influencing both stress and psychological distress or psychopathology. Causal inferences are limited to the interpretation that data may be consistent with an hypothesized model although not providing definitive proof of the causal relationships within the model.

Several prospective longitudinal studies found an association between adolescent stress and psychological distress or psychopathology at a follow-up assessment, even after controlling for initial symptoms. In other words, stressful events reported at a follow-up assessment predicted an increase in symptoms, syndromes and disorders over the time between the two data collections (e.g. Cohen *et al.*, 1987; Compas *et al.*, 1989a; Allgood-Merten *et al.*, 1990; Hammen *et al.*, 1991; Stanger *et al.*, 1992). Thus, recent stressful events are associated with observable increases in distress or psychopathology over and above the initial levels of symptoms reported by adolescents.

Several studies have also established that stressful events of both major and minor magnitude are predictive of subsequent internalizing and externalizing problems in late childhood and adolescence (e.g. Compas *et al.*, 1989a; Hammen *et al.*, 1991; DuBois *et al.*, 1992; Stanger *et al.*, 1992). These studies have shown that initial levels of stressful events and chronic strains are predictive of increases in symptoms of internalizing and externalizing problems, after controlling for initial levels of maladjustment. The amount of variance in maladjustment explained by stress has been relatively small, however. This suggests that other factors may moderate the relation between stress and maladjustment.

#### *Subtypes of stress: generic, acute and chronic stress*

Stress is most certainly not a unitary phenomenon, but rather includes a heterogenous set of events and circumstances that vary along a number of dimensions. These dimensions include the degree to which the stressor is normative or atypical, large or small in magnitude of occurrence, and acute or chronic in nature (Compas, 1987). Considering these dimensions, stressors can be organized into three broad categories that are important for understanding mental health outcomes for adolescents: generic or

normative stress; severe acute stress; and severe chronic stress (Compas, 1992).

All adolescents will be exposed to some level of generic stress as an ongoing part of development. This includes normative daily stresses and hassles, as well as more major events such as the transition to a new school. Generic stress, most notably the accumulation of daily stresses and hassles, have been found to be related to psychological symptoms during adolescence (e.g. Compas *et al.*, 1989a; DuBois *et al.*, 1992). The association between levels of generic stress and maladjustment has typically been quite modest, however, indicating that this type of stress does not tell the whole story of the association between adolescent stress and maladjustment.

In addition to the normative stresses and strains of adolescence, a subgroup of adolescents will encounter severe, acute events that are major or traumatic in magnitude. A wide range of events fit in this category including serious injuries, disasters, loss of a loved through death and parental divorce. These events are qualitatively different from normative stress processes in that acute stressors have a discrete onset, affect only a small portion of adolescents, and exert an extreme level of disruption in the adolescents' ongoing world. A prototype of severe, acute stress is the diagnosis of a life threatening illness, such as cancer, in mother or father (Compas *et al.*, 1992). Adolescents appear to experience more psychological distress at the time that their parents' receive a diagnosis of cancer than do younger children, and the level of distress depends on the gender of the adolescent and whether mother or father is ill (Compas *et al.*, 1992). Specifically, adolescent daughters whose mothers are ill appear to experience the highest levels of symptoms of depression and anxiety.

A subgroup of adolescents will also be exposed to severe, chronic stress as an ongoing part of their environment. Chronic stress and adversity includes exposure to poverty, neighbourhood or familial violence, racism, sexism and parental psychopathology. Parental depression is a prototype of severe, chronic stress in the lives of adolescents (Downey and Coyne, 1990; Hammen, 1991). Adolescents whose parents suffer from depression are at extreme risk for a variety of adjustment problems. The increased risk for depression in adolescents in these families is most noteworthy, but these youth are also at risk for a variety of other internalizing and externalizing problems.

These three categories of stress are not assumed to be mutually exclusive. Adolescents may be exposed to some or all of these forms of stressful events and circumstances. Further, acute stressful events may exert some of their effects through the creation of ongoing stressful circumstances in adolescents' environments. For example, two studies of adolescents have

shown that the relation between major life events and psychological distress is mediated by levels of chronic daily stress (Wagner *et al.*, 1988; Compas *et al.*, 1989b). This suggests that an enduring feature of some major life events is the degree of ongoing disruption that they produce in an individual's daily life and immediate environment.

*Individual differences in response to stress*

It appears that there are significant changes in the types of stress that are experienced in adolescence as compared to childhood, that these changes in stress are different for boys and girls, and that these changes may be related to psychological symptoms and disorder. For example, in a longitudinal study of adolescents, Petersen and colleagues (1991) found that adolescent girls experienced more challenging and stressful events than adolescent boys and these differences in stress accounted for gender differences in depressed mood. Specifically, adolescent girls who experienced the biological changes<sup>1</sup> associated with the onset of puberty in close proximity to making a transition to junior high school were at greatest risk for increases in depressed mood. Brooks-Gunn *et al.* (unpublished manuscript) found that depressed mood was more likely to be reported by early maturing adolescent girls who had experienced negative family and school events than late maturing girls, providing further evidence for the adverse consequences of coinciding biological and social events. Using a cross-sectional design, Wagner and Compas (1990) also found developmental differences during adolescence in the relation between subtypes of stress and psychological distress or psychopathology. Emotional and behavioral problems were predicted only by family events in young adolescents, peer events in middle adolescents and academic events in a sample of older adolescents attending college (Wagner and Compas, 1990). Early adolescent girls reported more social family, peer, intimacy and social network stressors than boys, and they perceived these events as more stressful than boys. Middle adolescent girls reported more intimacy and network stressors and perceived these events as more stressful than boys. It is noteworthy, however, that stressful events did not statistically account for gender differences in levels of symptoms in this study. Finally, Aseltine *et al.* (unpublished manuscript) found that adolescents with a history of chronic depressed mood, as compared with those adolescents who were consistently asymptomatic, also had a history of chronic

<sup>1</sup>We recognize that "biological" changes such as puberty may be stressful as a result of non-biological factors. For example, early pubertal onset may be stressful for girls because of the reactions of others in their social world rather than because of the biological changes associated with puberty, *per se*. We have chosen to refer to such events as "biological" purely for ease of communication.



stress within the family which led to both more depressed mood and efforts to orient away from the family and towards greater involvement with peers.

Recent evidence also suggests that there are developmental and gender differences in symptoms in response to a severe, acute stressor. As noted above, in our ongoing study of the stress associated with the diagnosis and treatment of cancer in a parent, we found that adolescents, and especially adolescent girls whose mothers are ill, reported more symptoms of depression and anxiety at the time of their parent's diagnosis and 4 months after the diagnosis, than did younger children (Compas *et al.*, 1992). Thus, a severe illness in a loved one led to greater depressive and anxious symptoms in a subgroup of adolescents girls as compared to adolescent boys.

#### COPING PROCESSES DURING ADOLESCENCE

The literature on child and adolescent coping has identified some important developmental changes and stabilities in the nature of coping with age. At least eight recent studies of the ways that children and adolescents cope with a wide range of stressors have examined developmental changes and stabilities in problem-focused coping (i.e. attempts to act on a stressor) and emotion-focused coping (i.e. attempts to manage one's emotions associated with a stressor) or in subtypes of these two categories (Curry and Russ, 1985; Wertlieb *et al.*, 1987; Band and Weisz, 1988; Compas *et al.*, 1988; Altshuler and Ruble, 1989; Ryan, 1989; Band, 1990; Kliever, 1991). All of these studies have found at least some evidence of a positive relation between reports of emotion-focused coping and age or some other marker of developmental level (e.g. cognitive development). Evidence for this developmental change has been found in samples of children and adolescents ranging from 5- to 17-years-old. Developmental increases in emotion-focused coping have been found in reports of coping with a variety of types of stress, including medical/dental stressors (e.g. Curry and Russ, 1985; Band and Weisz, 1988; Altshuler and Ruble, 1989) and interpersonal stressors (e.g. Compas *et al.*, 1988).

In contrast to consistent findings of developmental increases in emotion-focused coping, no consistent developmental changes have been found in problem-focused coping, with three studies finding no change with age (Wertlieb *et al.*, 1987; Compas *et al.*, 1988; Altshuler and Ruble, 1989) and two studies finding a decrease in problem-focused coping with age (Curry and Russ, 1985; Band and Weisz, 1988). The decreases in problem-focused coping were both found in reference to medical/dental

stressors, whereas no changes in problem-focused coping were found in relation to a wider range of stressors.

Building on these earlier studies, we recently investigated perceptions of control and coping in children, adolescents, and young adults whose parents have cancer (Worsham *et al.*, 1992). This study offered an opportunity to examine cognitive appraisals and coping with a similar stressor across a wide developmental range. The findings indicate that although appraisals of control did not change with age in this sample, the use of emotion-focused and dual-focused coping (i.e. strategies that accomplish both problem- and emotion-focused coping functions) increased from childhood to adolescence but not between adolescence and young adulthood. These patterns were present in comparisons between children and adolescents in analyses across age groups and in within age group correlations between coping and age for children and adolescents. These findings add to previous studies that found developmental increases in emotion-focused coping and stability in problem-focused coping with age (e.g. Band and Weisz, 1988; Compas *et al.*, 1988; Altshuler and Ruble, 1990) by examining reports of coping with a similar stressor across both age groups. Further, no changes in coping were found from adolescence to young adulthood, indicating that the use of emotion-focused coping had levelled off by early adulthood. Prior research had not compared coping of adolescents and young adults; these findings were useful in establishing a point in development at which increases in emotion-focused and dual-focused coping appear to stabilize. Finally, the increase in emotion-focused coping from childhood to adolescence was not the result of developmental changes in perceived control over the stressor, as perceptions of both personal and external control remained stable across the three age groups.

It appears that childhood and adolescence are periods in which emotion-focused coping skills are acquired and their use is increased. In contrast, problem-focused coping skills do not appear to increase in use from middle childhood through adolescence. These more active forms of problem-solving may be acquired and increase in use more rapidly during early childhood (Compas *et al.*, 1991). This may be a consequence of differences in the degree to which problem- and emotion-focused coping skills are observable in the behaviors of adult models. Problem-focused coping may involve observable behaviors that are more readily acquired through observational learning. Emotion-focused coping involves more covert processes of cognitive and emotional self-control and may be less observable to children. These skills may be acquired through a longer process of direct instruction regarding the use of palliative strategies. The use of dual-focused coping, which appears to involve the use of more complex

strategies that are intended to achieve multiple goals, also appears to follow a slower developmental rate.

Studies of coping during adolescence, although important in establishing the increased use of emotion-focused coping during this age period, have not delineated the specific types of emotion-focused coping that increase during the adolescent years. Further, it is not clear how the use of different types of emotion-focused coping by girls and boys might develop during adolescence. It is plausible to expect that boys and girls may be socialized to use different strategies for managing their emotions under stress. To consider these issues further, we will now turn to the literature on depression and coping in adults and discuss the potential implications of this research for adolescence.

#### GENDER, COPING AND PSYCHOPATHOLOGY DURING ADOLESCENCE

Gender differences in the rates of psychopathology throughout adulthood, most notably unipolar depression and depressive symptoms, are consistent and well-documented. Although a number of theories have been proposed to explain these differences none have received adequate empirical support. Recent research by Nolen-Hoeksema and her colleagues has been promising however, and suggests that coping processes may play a critical role in gender differences in depression. Nolen-Hoeksema (1991) has proposed that women are more prone to depression because of their "response set" to depressive moods; that is, women tend to respond to depressed mood with a high level of attention to their emotional experience which she has labelled rumination.<sup>2</sup> In response to depressive emotions, women engage in thoughts and behaviors that focus attention on their depressive emotions and symptoms as well as on the cause of the mood and its implications. This emotional attentiveness or rumination allows depressed mood to affect thinking and can activate negative memories thereby increasing current depressive mood. This focus on negative emotional states can also increase negative self-evaluations and negative explanations for failures and thereby increase helplessness on future tasks. Furthermore, cognitive attention to emotional processes

<sup>2</sup>We acknowledge that the term "rumination" has a negative connotation and, as such, could contribute to maintaining stereotypical beliefs about differences in coping between men and women. It is likely that attention to one's emotions during stress has a number of benefits as well as liabilities. We have chosen to retain this term for two reasons. First, this is the term that was selected by Nolen-Hoeksema in her response-set theory of coping. Second, the term highlights the potential problems in this type of coping that may contribute directly to depressive outcomes.

may interfere with concentration and initiation of instrumental behaviors that might increase chances for controlling the environment and achieving positive outcomes.

Men, on the other hand, may be protected from depression by their prototypic response set of emotional distraction or purposely turning *their attention away from the depressive mood to more pleasant or neutral activities*. This shift in focus and initiation of instrumental behaviors may relieve the negative mood as well as increase chances for obtaining positive reinforcement and a sense of control over the environment. Whether there are other negative outcomes for men as a result of the use of distraction is unclear. It is plausible that the use of distraction and other forms of avoidant coping may be related to the higher prevalence of aggressive disorders and alcoholism and other forms of substance abuse observed in males. The specific types of coping that might be related to these problems in males have not been identified.

Recent research supported Nolen-Hoeksema's model in that ruminative tasks have been found to maintain a depressed mood while distracting tasks relieved a depressed mood (e.g. Morrow and Nolen-Hoeksema, 1990). Further, individuals with more ruminative styles have longer periods of depressed mood.

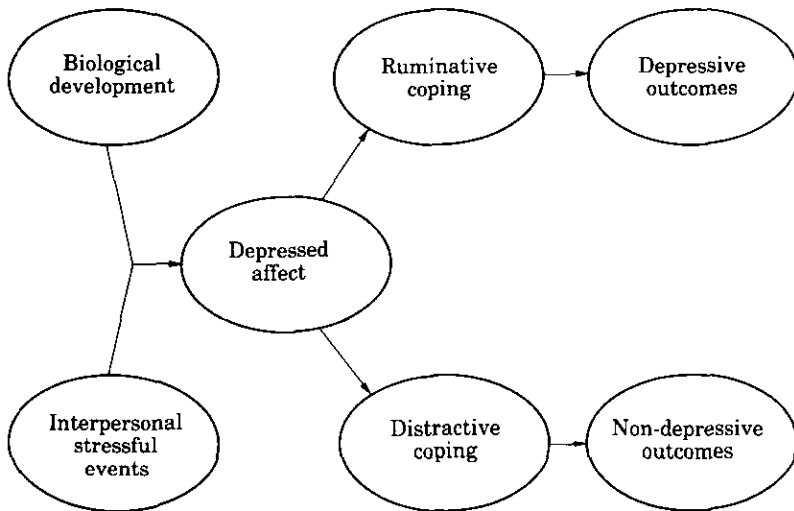
Nolen-Hoeksema (1991) suggests that these different response styles may grow out of socialization processes that contribute to gender stereotypes. The male stereotype to be active and ignore moods may be strengthened by parental sanctions against boys displaying "feminine" emotionality. Men's distracting responses to depressive moods may be the result of conforming to sanctions against emotionality. The female stereotype of emotionality and inactivity may be seen in parents' lack of support for girls' exploratory activity and attentive response to girls' emotional reactions. Women may learn to believe that they are naturally emotional and that these emotions can not be avoided, which may lead them to ruminate instead of distracting themselves from their depressive moods. Although direct tests of these developmental hypotheses have not been carried out, they are provocative and suggest future research needs in the area of adolescent stress, coping and depression.

#### TOWARD AN INTEGRATION OF ADOLESCENT STRESS, COPING AND PSYCHOPATHOLOGY

The four areas of research described above represent pieces of a complex puzzle. As a first step in solving the puzzle of stress, coping and psychopathology during adolescence, we will focus our attention on adolescent

depression as a target. We can begin with the observations that depressive mood, syndromes and disorders increase in adolescence and that boys and girls diverge in their experiences of these depressive phenomena during adolescence. The second piece of the puzzle comes from studies establishing an association between stress and adolescent psychopathology, with some studies indicating that adolescent girls are more adversely affected by interpersonal stress. The third piece of the puzzle includes research on the developmental changes in coping, suggesting that the use of emotion-focused coping increases during adolescence. Finally, the last piece of the puzzle comes not from research on adolescence, but from research with adults suggesting that women and men use different types of emotion-focused coping, with women relying more on ruminative methods that may exacerbate and prolong depressed mood.

An hypothesized model of the role of stress and coping in the evolution of depressive phenomena and other forms of psychopathology during adolescence is presented in Figure 1. This model is based on several observations taken from existing research. First, work by Petersen *et al.* (1991) and Brooks-Gunn *et al.* (unpublished manuscript) suggests that the timing of the onset of puberty, a major event in biological and social development, and the co-occurrence of significant social or interpersonal stress may combine to lead to increased levels of depressed mood. Further, interpersonal stressors appear to play an important role in psychological



**Figure 1.** Hypothesized model of biological, stress, and coping processes in adolescent depression.

distress in early and middle adolescence (Wagner and Compas, 1990). The occurrence of biological/social changes and interpersonal stress are not sufficient however, to fully account for the significant divergence in depressive syndromes and disorders observed in adolescent males and females. The ways in which adolescent males and females cope with initial experiences with depressed mood may be essential in explaining the onset and maintenance of more pervasive depressive outcomes. Specifically, the use of emotion-focused coping by both males and females increases during adolescence. Consistent with Nolen-Hoeksema's response-set model, adolescent females may develop coping styles that involve emotional-attention or rumination whereas males rely on distraction from emotions. This entire process of stressful events and coping responses may predispose adolescent females to greater depressive outcomes because they are more likely to encounter biological/social changes in conjunction with interpersonal stress, they may be more responsive to the effects of interpersonal or social network stress, and they may be more likely to respond to these stressors with an emotionally attentive or ruminative coping style. Therefore, no single element in this hypothesized model would be sufficient to account for the increase in adolescent depression in girls as compared to boys. Rather, it is the combination of stress *and* coping processes that lead to these divergent outcomes.

This model suggests a number of directions for future research. For example, interpersonal stressful events (e.g. conflicts between parents, the break-up of an intimate relationship) may be less controllable than non-interpersonal events (e.g. performance on a school exam), and the uncontrollable nature of interpersonal stressors may elicit the use of more emotion-focused coping. Perceptions of stressful events as controllable are associated with increased use of problem-focused coping (Compas *et al.*, 1991). However, many types of interpersonal events, and especially "network stressors" that occur in the lives of others in one's social network, may be perceived as beyond one's personal control and therefore not amenable to the use of problem-focused coping. As a result, many types of interpersonal stress may elicit the use of emotion-focused coping strategies to manage the negative emotions that they create.

Boys and girls both increase their use of emotion-focused coping strategies during early adolescence; however, girls may increase in the use of emotionally attentive or ruminative coping strategies whereas boys increase in the use of emotion-distraction coping. Both socialization processes and greater exposure to or investment in uncontrollable interpersonal stressors may contribute to the use of ruminative processes of coping in adolescent girls. Boys on the other hand, may be socialized to rely on distractive coping methods, an approach to coping which may

have the additional effect of disengaging them from interpersonal stress to a greater extent than girls. Ruminative coping responses maintain depressed mood, inhibit problem-focused coping and instrumental behavior (which could provide a sense of personal efficacy and control), and lead to more depressive outcomes. In contrast, distraction coping facilitates problem-focused coping, instrumental behavior, and a sense of control over the environment which are likely to lead to non-depressive outcomes. All of these outcomes are not expected to be positive, however. For example, higher levels of aggression and conduct problems among boys may be attributable to coping efforts that are intended to achieve some degree of control over the environment.

An important question for future research centers on how environmental processes may affect girls in such a way that they choose a ruminative response rather than a more distracting one when experiencing a depressed mood (and vice versa for boys). Perhaps in their appraisal of their depressed mood girls assess the situation or environment as unamenable to change, or change may be perceived as undesirable and therefore they decide against problem-focused coping in favor of emotion-focused and ruminative coping. For example, consider an adolescent girl who is faced with an interpersonal dilemma such as speaking out against some injustice in a relationship as opposed to staying involved in an unjust relationship. An adolescent girl may decide that speaking out against the injustice would be as stressful as enduring it quietly, or that it would not significantly improve the relationship. As a consequence, she may choose to think about or ruminate about it, rather than directly or instrumentally cope with the dilemma. Conversely, boys may appraise the environment as amenable to change and therefore choose more instrumental types of coping. Why boys may assess environments as more changeable than girls may be a function of their idiosyncratic appraisal processes or of actual differences in the ways that environments respond to girls' and boys' attempts to cope with stress.

The combined exposure to the consequences of early pubertal onset, sensitivity to interpersonal stressful events, and the use of ruminative coping lead to increased depressive outcomes in adolescent girl. As represented in Figure 1, we believe that increased rates of depressive syndromes and disorders in adolescent girls are the result of several converging factors. Thus, main effects models in which either biological, stress, or coping processes are used to explain gender differences in adolescent coping will likely prove insufficient. Research based on a broad biopsychosocial model of adolescent development is needed to solve the intriguing puzzles that we have described here.

## SUMMARY

Exciting advances in research on adolescent stress and coping have underscored the importance of these concepts for understanding psychopathology during this developmental period. Specifically, research concerned with adolescent stress, coping and depression offers a number of important opportunities for clarifying developmental psychopathology during adolescence. Integrative research in which stress and coping processes are examined together in their association with depression will be especially important in advancing our knowledge in this area.

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