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**Understanding the Association Between Self-Concept, Daily Hassles, and Depressive
and Anxiety Symptoms Among Adolescents**

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**Dissertation submitted to the School of Graduate Studies of the
University of Ottawa in partial fulfillment of the requirements
for the degree of Doctor of Philosophy**

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**This dissertation is dedicated to the memory of Dr. Pierre Baron,
my mentor, my colleague, and my very special friend**

and

to Darren Kiedyk, my loving and supportive husband

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ABSTRACT

The primary goals of the current investigation were pursued through two separate studies. The first study was aimed at developing and assessing the psychometric adequacy of a daily hassles scale. The second study was prospective (six month time interval) and was aimed at testing specific hypotheses regarding the relations among self-concept, daily hassles, and depressive and anxiety symptoms. Specifically, the purposes of Study 2 were three-fold: (a) to test hypotheses congruent with traditional formulations of diathesis-stress models separately for boys and girls and for depressive and anxiety symptoms, (b) to examine the prospective association between specific facets of self separately for boys and girls and for depressive and anxiety symptoms, and (c) to test two separate models for understanding the causal linkages between self-concept, daily hassles, depressive and anxiety symptoms. Results of Study 1 supported the factorial validity of the Adolescent Daily Hassles Inventory (ADHI). A five-factor structure, comprised of dimensions labelled *Academic*, *Family Relations*, *Interpersonal Concerns*, *Achievement*, and *Uncertainty about the Future*, most adequately fit the data. Further tests of construct validity, internal consistency, and test-retest reliability provided additional support for the reliability and validity of the ADHI and direction for future research aimed at assessing and refining the ADHI. Results of Study 2 supported the assertion that self-concept can best be understood from a multidimensional perspective. Findings based on prospective analyses indicated that specific components of self-concept (cf. general self-concept) were more useful for understanding outcome measures. Consistent with socially prescribed gender roles, results indicated that self-concepts in the areas of math, school, and physical ability were the greatest risk factors for anxiety symptoms among boys, whereas self-concepts in the areas of physical appearance and verbal ability were consistent risk factors for depressive and anxiety symptoms among girls. Support also was obtained for hypothesized causal models aimed at understanding the causal linkages among self-concept, daily hassles, depressive and anxiety symptoms. Specifically, findings supported the hypothesized temporal association between symptoms of anxiety (Time 1) and depression (Time 2), as well as the proposed causal linkages between depression at Time 1 and self-concept and daily hassles at Time 2. Results are discussed in the context of prominent theories of adolescent development and depression.

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INTRODUCTION

Adolescence is a critical period for understanding the etiology and course of depressive symptoms and disorders¹ (Petersen, Compas, & Brooks-Gunn, 1992; Petersen, Compas, Brooks-Gunn, Stemmler, Ey, & Grant, 1993). Epidemiological studies suggest that the overall prevalence rates of major depressive disorder rise through childhood and into adolescence (Fleming, Offord, & Boyle, 1989). By middle to late adolescence, rates of major depressive disorder approach levels consistent with those observed in adult populations (American Psychiatric Association, 1994; Fleming & Offord, 1990; Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993). A greater prevalence of depressive symptoms also has been observed among adolescents compared with both children (Angold, 1988; Kaplan, Hong, & Weinhold, 1984; Rutter, Graham, Chadwick, & Yule, 1976) and adults (Allgood-Merten, Lewinsohn, & Hops, 1990; Teri, 1982; Vulcano & Barnes, 1987).

A parallel shift in the gender ratio occurs during adolescence. Among preadolescent children, studies have shown that there are either no gender differences (Fleming et al., 1989; Kaslow, Rehm, & Seigel, 1984) or that boys are more likely than girls to manifest higher levels of symptoms (Nolen-Hoeksema, Girgus, & Seligman, 1991) and rates of diagnosable disorders (Anderson, Williams, McGee, & Silva, 1987).

¹Researchers and clinicians generally agree that depressive symptoms and disorders are qualitatively distinct. Theoretical and empirical literature pertinent to this issue will be reviewed later in this chapter, in the section entitled Depressive Symptoms, Syndrome, and Disorder.

The female preponderance appears to emerge by about 13 years of age and is firmly established by mid-adolescence, with adolescent girls showing higher levels of depressive symptoms (Allgood-Merten et al., 1990; Campbell, Byrne, & Baron, 1992; Nolen-Hoeksema & Girgus, 1994; Schonert-Reichl & Offer, 1992) and rates of diagnosable disorders than boys (Angold & Rutter, 1992; Lewinsohn et al., 1993). Moreover, research clearly indicates that the observed gender difference persists throughout adolescence and into adulthood (Allgood-Merten et al., 1990; Angold, 1988; Lewinsohn et al., 1993; Petersen et al., 1993). Epidemiological studies consistently report that adult women are about twice as likely as men to manifest both subclinical levels of depressive symptoms and diagnosable unipolar mood disorders (Coryell, Endicott, & Keller, 1992; Nolen-Hoeksema, 1987, 1990; Weissman & Klerman, 1977).

These epidemiological data clearly illustrate the importance of studying depressive symptoms among adolescents. Studies of depression in adolescence are of critical importance in advancing our understanding of the increased prevalence rates, as well as the female preponderance, which seem to emerge during this developmental period. Considerable evidence has accumulated in the adolescent literature to suggest that stress is an important factor in the development of depressive phenomena (Compas, Grant, & Ey, 1994; Garber & Hilsman, 1992). The magnitude of the association between stress and depression is only moderate however, suggesting that other variables may moderate the effect of stress on symptomatology (see Compas et al., 1994; Nolen-Hoeksema & Girgus, 1994 for reviews). One possible moderator that has received a great deal of research attention is cognitive style (e.g., Cole & Turner, 1993; Garber &

Hilsman, 1992; Hammen, 1990; Hilsman & Garber, 1995; Nolen-Hoeksema, Girgus, & Seligman, 1986; Robinson, Garber, & Hilsman, 1995). That is, individuals who have a negative cognitive style are more likely to experience depression under conditions of stress than those who do not have such cognitions (Robinson et al., 1995).

A number of cognitive and/or affective variables (e.g., attributional style, cognitive distortions, locus of control, low self-esteem or negative view of the self, hopelessness or negative expectations about the future) have been found to be associated with depressive phenomena (e.g., Coyne & Gotlib, 1983; Garber & Hilsman, 1992). The present study focused on self-esteem² as a possible risk factor which may at least partially account for the increased incidence and observed gender difference in depressive symptoms during adolescence. In broad terms, the primary purpose of the present dissertation was to build upon previous research by examining the prospective and concomitant associations among self-concept, stress, and depressive symptoms among male and female adolescents. The following literature review provides a theoretical and empirical rationale for this general purpose and concludes with an overview of the literature and specific hypotheses to be tested. The literature review is divided into three general sections. First, current conceptions of depression in adolescence are discussed. Second, the influence of self-concept in the development and maintenance of depressive phenomena is expounded. Finally, a synopsis of the literature outlining the relevance of stress as a correlate, predictor, and consequence of depressive phenomena is provided.

²Although a theoretical distinction between self-concept and self-esteem is often made, such a distinction has not been empirically tested and substantiated (Byrne, 1996). Hence, the terms self-concept and self-esteem are used interchangeably throughout this dissertation; this issue is addressed in greater detail later in the Introduction.

Current Conceptions of Depression in Adolescence

Several issues regarding the definition and assessment of adolescent depression have been delineated in the research literature (see review by Compas, Ey, & Grant, 1993). These include: (a) the extent to which depression in children and adolescents differs from that observed among adults, (b) the distinction between depressive symptoms, depressive syndrome, and clinical depression, and (c) the overlap between depressive symptoms and other psychological symptoms, most notably anxiety. Each of these issues will be addressed as they pertain to this dissertation.

Depression in Children and Adolescents versus Adults

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM IV; American Psychiatric Association, 1994), the core symptoms of a Major Depressive Episode are the same for adolescents and adults. The only distinctions noted are with respect to the depressed mood (i.e., sad, empty, tearful) and weight change criteria. In children and adolescents, *irritable* mood can be substituted for *depressed* mood and the weight change criterion specifies a consideration of the failure to make developmentally expected weight gains. It is also noted however, that the prominence of various symptoms may vary as a function of age. For example, somatic complaints are more common among children than among adolescents and adults (American Psychiatric Association, 1994).

Similarly, although some self-report measures such as the Reynolds Adolescent Depression Scale (RADS; Reynolds, 1986) have been developed specifically for adolescents, measures originally developed for clinical adult populations (e.g., the Beck Depression Inventory; BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) also have been shown to be reliable and valid instruments for clinical and nonclinical adolescent samples (Barrera & Garrison-Jones, 1988; Kauth & Zettle, 1990; Strober, Green, & Carlson, 1981). Moreover, studies examining the factor structure of the Children's Depression Inventory (CDI; Kovacs, 1980) and the BDI (Beck et al., 1961) have found minimal differences between child and adolescent populations (Weiss et al., 1991) and between adolescent and adult populations (Byrne & Baron, 1993, 1994; Byrne, Baron, Larsson, & Melin, 1995; Byrne, Baron, & Balev, 1996a; Tanaka & Huba, 1984).

Likewise, although the types of disorders which covary with depression differ slightly as a function of age, a high rate of comorbidity has been observed across the life span. For example, conduct disorder and attention-deficit/hyperactivity disorder are more likely to coexist with depression in childhood than in adolescence and adulthood, whereas eating disorders are more likely to co-occur with depression in adolescence than in childhood (Angold & Costello, 1993; Attie & Brooks-Gunn, 1989; Bird, Gould, & Staghezza, 1993; Cantwell & Baker, 1991; Compas & Hammen, 1994; Rohde, Lewinsohn, & Seeley, 1991). The highest rates of comorbidity among adults are found for substance abuse and depression (Helzer, 1987; Pettinati, Franks, Wade, & Kogan, 1987). High rates of comorbidity of depressive and anxiety disorders are common to

children, adolescents, and adults (Feldman, 1993; Finch, Lipovsky, & Caset, 1989; Gotlib & Cane, 1989; Rohde et al., 1991). In summary, although the prevalence of some depressive symptoms and associated features have been found to differ among children, adolescents, and adults (American Psychiatric Association, 1994; Weiss et al., 1991), the current literature generally suggests that depression in children and adolescents can be reliably diagnosed and that it is essentially congruous with depression in adulthood (Cicchetti, Rogosch, & Toth, 1994; Nolen-Hoeksema & Girgus, 1994).

Depressive Symptoms, Syndrome, and Disorder

Also consistent with the adult literature, depression in adolescence has been conceptualized at the level of a depressed mood, symptoms, a syndrome, and a psychiatric/clinical disorder (Cantwell & Baker, 1991; Compas et al., 1993). Depressed mood generally refers to feelings of sadness, unhappiness, and feeling blue for an unspecified period of time (Cantwell & Baker, 1991; Petersen et al., 1993). Depressive symptoms also include the presence of depressed mood, as well as such symptoms as weight and appetite disturbances, loss of energy, and suicidal ideation (Cantwell & Baker, 1991). Self-report measures such as the BDI and the RADS are used to measure depressive symptoms in adolescents (Compas et al., 1993). The depressive syndrome refers to a constellation of symptoms that tend to reliably cluster together. This pattern of symptoms is characterized by complaints reflecting both anxiety and depressive symptoms (e.g., feels lonely, fears doing bad things, worries, feels sad) (Petersen et al., 1993). As a clinical or psychiatric disorder, the term depression is used to describe a

depressive syndrome with a minimum duration and some degree of functional impairment in important areas such as work/school and interpersonal relationships (Kendall, Cantwell, & Kazdin, 1989; Petersen et al., 1993).

Based on an extensive review of the epidemiological and empirical literature, Compas et al. (1993) have proposed a hierarchical and sequential model for integrating depressed mood and/or symptoms, syndromes, and disorders. Specifically, on the basis of point prevalence data (vs. lifetime prevalence rates), it is suggested that (a) a significant number of adolescents (between 15% and 40%, depending on the assessment tool used) experience transient elevations of depressive symptoms, including depressed mood (b) a smaller group of adolescents will subsequently develop a depressive syndrome (point prevalence rates suggest approximately 5%-6% of the population), and (c) a smaller group (approximately 1%-3% of the population) will develop a depressive disorder. The progression from one level to the next is thought to be moderated by dysfunction in biological, stress, and/or coping processes. Consistent with this model, several studies have shown that elevated scores on self-report measures of depression constitute a risk factor for the development of diagnosable episodes of depression in both adult (Horwath, Johnson, Klerman, & Weissman, 1994; Lewinsohn, Hoberman, & Rosenbaum, 1988) and adolescent (Lewinsohn & Rohde, 1993) samples. Moreover, those children and adolescents who experience clinical depression are at risk for developing other episodes of diagnosable depression during adolescence (McGee & Williams, 1988; McCauley et al., 1993) and adulthood (Harrington, Fudge, Rutter, Pickles, & Hill, 1990; Kovacs et al., 1984).

However, elevated scores on self-report measures are not necessarily indicative of clinical depression, nor do they inevitably portend the development of a depressive disorder. Research with both adult and adolescent samples has shown that individuals who report high levels of depressive symptoms are not always judged to be clinically depressed on the basis of interview data (e.g., Garrison, Jackson, Marsteller, McKeown, & Addy, 1990; Hammen, 1980; Lewinsohn & Teri, 1982; Strober et al., 1981). Thus, it has been argued that although depressive symptoms and diagnosable episodes of depression may share a core of common features, subclinical levels of depression are qualitatively distinct from clinically severe levels (Coyne, 1994; Coyne & Gotlib, 1983; Gotlib, 1984; Lewinsohn et al., 1988). According to Compas et al. (1993), the core features common to the various levels of depression observed among adolescents are depressed mood and low self-esteem or feelings of worthlessness. Congruent with these results, Gotlib, Lewinsohn, & Seeley (1995) found nonsignificant differences on measures of self-esteem and depressed mood for those adolescents who obtained elevated scores on self-report measures of depression compared to those who met diagnostic criteria.

The Overlap Between Symptoms of Depression and Anxiety

Of the various psychological disorders with which depression is comorbid, anxiety has received the most research attention (Rohde et al., 1991). Like depression, anxiety can be conceptualized at the level of symptoms, syndromes, and disorders and, of particular relevance to this study, the greatest degree of overlap appears to be at the level

of symptoms (Hiller, Zaudig, & Bose, 1989). Numerous researchers have addressed the issue of discriminant validity as it pertains to the most well-utilized self-report measures of anxiety and depression for children, adolescents, and adults (e.g., Brady & Kendall, 1992; Dobson, 1985; Feldman, 1993; Finch et al., 1989; Gotlib & Cane, 1989; Wolfe et al., 1987). A lack of discriminant validity is consistently reported, coupled with the suggestion that the high correlations between measures of these constructs reflect a common dimension best described as *generalized emotional distress* or *negative affectivity* (NA; i.e., negative emotions, distress) (e.g., Finch et al., 1989; Feldman, 1993; Gotlib, 1984; Watson & Clark, 1984; Wolfe et al., 1987). *Positive affectivity* and *somatic anxiety*, on the other hand, are thought to be differentiating features, with low positive affectivity (i.e., anhedonia) being associated with depression and somatic anxiety with anxiety (Watson, Clark, & Carey, 1988; Watson, Clark, et al., 1995; Watson & Kendall, 1989; Watson, Weber, et al., 1995).

Although a negative self-view is generally considered a more central aspect of depression than of anxiety (see Watson & Kendall, 1989 for a review), the significance of self-esteem as a characteristic of both disorders is apparent in current conceptions of negative affectivity. In particular, negative affectivity has been defined as a mood-dispositional dimension reflecting individual differences in negative emotionality and self-concept (Clark & Watson, 1991; Watson & Clark, 1984). “High-NA individuals tend to be distressed and upset and have a negative view of self, whereas those low on the dimension are relatively content and secure and satisfied with themselves” (Watson & Clark, 1984, p. 465). Congruent with this definition, Lorr and Wunderlich (1988) found

that male high school students low in self-esteem reported greater levels of negative affectivity than those high in self-esteem (Lorr and Wunderlich, 1988).

In view of the symptomatic overlap between depression and anxiety, a diagnosis of mixed anxiety-depressive disorder was considered for inclusion in the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM IV) and finally relegated to the status of “criteria sets and axes provided for further study” (American Psychiatric Association, 1994, p. 703). Again, supporting claims of the centrality of self-esteem, low self-esteem is one of the criteria under consideration. Consistent with the unitary phenomenon perspective, a continuum approach has been advanced, with some researchers proclaiming a temporal association in which anxiety precedes depression (Dobson, 1985). Longitudinal studies have supported this proclamation, with results demonstrating that anxiety generally predates the development of major depressive disorder among children and tends to persist once the depression has remitted (Kovacs, Gatsonis, Paulauskas, & Richards, 1989). Similarly, it has been found that anxiety symptoms at nine years of age are a significant risk factor for depressive symptoms during adolescence (Reinherz, et al., 1989). In contrast with this perspective, others maintain that depression and anxiety are two categorically distinct disorders which tend to coexist (Foa & Foa, 1982; Foa, Olasov Rothbaum & Kozak, 1989).

In summary, the current research literature highlights the importance of studying depressive symptoms among adolescents, as well as the need to consider the issue of comorbidity with anxiety symptoms. Findings also affirm the relevance of studying the influence of self-concept as a risk factor in the development and maintenance of

depressive and anxiety symptoms during the adolescent period. The status of self-esteem as a cardinal feature in the understanding of both depression and anxiety is reflected in current conceptions of negative affectivity and in studies aimed at examining the overlap between depression and anxiety at the level of symptoms or diagnosable disorders. A review of the literature in the area of self-concept, as it pertains to this dissertation, is now provided.

The Influence of Self-Concept in the Development and Maintenance of Depressive Phenomena

The following literature review is divided into five main sections. First, pertinent conceptions of the self are outlined, coupled with a brief review of the theoretical and empirical distinction between the terms self-esteem and self-concept. Second, a multidimensional model of self-concept is introduced. Third, a review of relevant literature pertaining to age and gender differences in specific self-concept domains is provided. Fourth, an internal/external frame of reference model is described. Finally, studies aimed at examining the association between self-concept and depressive phenomena are briefly summarized.

Conceptions of the Self

Rosenberg (1979) asserts that the concept of “self” stands foremost in the ranks of confusion. The inconsistent usage of terms such as ego, identity, existential self,

authentic self, phenomenal self, self-image, and self-worth have amplified the terminological confusion in this area (Rosenberg, 1979). However, over the years, one fundamental distinction has been recognized -- the *self as object* vs. the *self as agent* (Rosenberg, 1979; Wylie, 1974). The self can be conceived as an active agent or as an object of one's own knowledge and evaluation (Rosenberg, 1979; Wylie, 1974). As an active agent, the self plays an instrumental role in interpreting external events and guiding behavior (Carver & Scheier, 1989; Harter & Marold, 1989; Loevinger & Blasi, 1989). According to Rosenberg (1979), the essence of the self as object can be defined as the "totality of the individual's thoughts and feelings with reference to himself as an object" (p. 8). As will be discussed later, both conceptions of the self are of relevance to this dissertation.

Unfortunately, although the fundamental distinction between the self as object and the self as agent is acknowledged, distinctions and similarities between other conceptions of the self have not been adequately addressed. Of particular relevance to this dissertation, the definitions of self-concept and self-esteem, and the degree to which these constructs differ, have not been clearly delineated. As was stated previously, for the purposes of this dissertation, the terms self-concept and self-esteem are used interchangeably. A clear rationale for this decision is now provided.

Distinguishing between self-concept and self-esteem. Researchers generally agree that self-concept represents a broader construct comprised of cognitive, affective, and behavioral components, and that self-esteem is a more limited evaluative aspect of one's self-concept (e.g., Campbell, 1990; Fleming & Courtney, 1984; Greenwald et al.,

1988; McGuire & McGuire, 1982). In this context, many investigators assert that self-concept can be considered descriptive, whereas self-esteem is evaluative (e.g., Campbell, 1990; Fleming & Courtney, 1984; Harter, 1983).

Despite conceptual claims supporting the distinction between self-concept and self-esteem, construct validity research has not supported the discriminability of these constructs (e.g., Shepard, 1979). Some researchers have attributed this lack of distinction to the use of self-report scales comprised of items eliciting both descriptive and evaluative components (e.g., Watkins & Dhawan, 1989). In spite of the use of open-ended questions, Greenwald et al. (1988) found that self-esteem was an important aspect of self-concept scores, even when the measure of self-concept had no superficial evaluative content. Similarly, Watkins and Dhawan (1989) found that the distinction between self-concept and self-esteem is more apparent in non-Western than in Western samples. (For a more thorough review of these issues, readers are referred to Byrne, 1996.) Recognizing that the theoretical distinction between self-concept and self-esteem has not yet been empirically substantiated, and consistent with the literature wherein the two terms are typically used interchangeably, the terms self-concept and self-esteem will be considered here as synonymous constructs.

Self-concept as a Multidimensional Construct

Although early theoretical accounts emphasized the multifaceted structure of self-concept (e.g., James, 1890), most early empirical studies emphasized a unidimensional general self-concept structure rather than a more specific multidimensional structure of

self (e.g., Coopersmith, 1967; Marx & Winne, 1978; Wylie, 1974, 1979). Systematic reviews of this early research noted the theoretical and methodological shortcomings of self-concept research, as well as the unmanageable array and poor quality of instruments designed to measure the construct (e.g., Wells & Marwell, 1976; Wylie, 1974, 1979). In response to issues concerning imprecision in theory and instrumentation, Shavelson, Hubner, and Stanton (1976) conducted a review of the literature and posited a multifaceted, hierarchical model of self-concept (hereafter termed the Shavelson model). According to this theoretical model, general self-concept is situated at the apex of the hierarchy and considered to be a superordinate category under which more specific domains are organized (e.g., academic and nonacademic components). In support of the multidimensional approach to understanding self-concept, several factor analytic studies have shown that children eight years of age and older distinguish between separate domains and that the structure and complexity of self-concept varies as a function of developmental age (Byrne & Shavelson, 1986, 1987, 1996; Byrne & Worth-Gavin, 1996; Harter, 1982, 1990). An increasing accumulation of empirical evidence substantiates the assertion that self-concept cannot be adequately understood unless its multidimensionality is taken into account (e.g., Byrne, 1984, 1990, 1996; Marsh, 1990a).

Shavelson's model of self-concept has provided explicit assumptions about the structure of self-concept and has lead to the development of several instruments designed to measure multidimensional self-concepts (see Byrne, 1996). The Self-Description Questionnaires (SDQI, SDQII, SDQIII; Marsh 1992a, 1992b, 1992c) were developed from the Shavelson model and thus represent an improvement over most earlier

instruments which were not theoretically derived. The SDQI was designed for use with preadolescents, whereas the SDQII and SDQIII were designed for adolescents and late adolescents/young adults, respectively. The SDQ II, the instrument used in this study, is comprised of 11 subscales labelled General, School, Math, Verbal, Physical Ability, Physical Appearance, Parent Relations, Same Sex Peer Relations, Opposite Sex Peer Relations, Honesty, and Emotional Stability Self-concepts.

Internal/External Frame of Reference Model

The publication of Shavelson and colleagues' article in 1976 lead to a proliferation of research aimed at the examination and refinement of the Shavelson model, as well as the development of other theoretically relevant models. Of particular pertinence to this dissertation is the internal/external frame of reference model (I/E model; see Marsh, 1986, 1990b; Marsh, Byrne, & Shavelson, 1988). The internal/external frame of reference model was developed to account for the observed correlations between verbal and math self-concepts, and between verbal and math academic achievements. Specifically, verbal and math achievements typically correlate at .50 to .80, whereas the respective correlation between verbal and math self-concept is near zero (Marsh, 1990b). The I/E model was designed to explain this somewhat paradoxical finding of relations between actual achievement scores and their related self-concept scores.

According to the I/E model, verbal and math self-concepts are formed with respect to both internal and external comparisons or frames of reference. For the

external process, students compare their own verbal and math skills to their perceptions of other students' skills in these areas (Marsh, 1986, 1990b). Studies have demonstrated that students of average ability (relative to other students in the general population) obtain higher academic self-concept scores in a school where most students have lower abilities than in a school where most students have higher abilities (Marsh & Parker, 1984). Given the substantial correlation between verbal and math abilities, this external process should lead to a positive correlation between verbal and math self-concepts (Marsh, 1990b).

This external comparison serves as one basis for their verbal and math self-concepts (Marsh, 1990b). The model further posits an internal comparison process whereby students compare their self-perceived verbal abilities with their self-perceived abilities in math. Like the compensatory model proposed by Winne and Marx (1981), the internal comparison process permits people to balance what they perceive as poor performance in one domain with good performance in another. Math and verbal achievements are compared against one another and it is the perceived difference between math and verbal skills that contributes to a higher self-concept in one area relative to the other and a negative correlation between verbal and math self-concepts. It is the joint operation of both the internal and external comparison processes that accounts for the near-zero correlations between verbal and math self-concept (Marsh, 1990b; Marsh et al., 1988).

Consistent with gender stereotypes, studies have generally shown that girls obtain higher verbal self-concept scores than do boys, whereas boys obtain higher math self-

concept scores than do girls (see Marsh, 1990a for a review). Given that the current dissertation is aimed at understanding the potential influence of specific self-concept scores in the development of depressive and anxiety symptoms among boys and girls, it is important to conduct such an investigation with regard to the internal/external frame of reference model. Readers are referred to the Results section of Study 2 for additional clarification of the manner by which this model is addressed in statistical analyses aimed at examining the influence of specific self-concept scores in the development of depressive and anxiety symptoms.

Age and Gender Differences in Specific Self-Concept Domains

Based on a review of studies using the SDQ instruments, Marsh (1990a) found that males have significantly higher physical ability, physical appearance, and math self-concepts for all age groups ranging from preadolescence through early adulthood, whereas females have higher verbal self-concept scores. For scales specific to the SDQ II, Marsh (1990a) reported that males have higher emotional stability and general self-concept scores, whereas females have higher honesty/trustworthiness scores. Gender differences on the social scales are inconsistent but tend to indicate a trend favoring girls (e.g., girls have higher same sex peer relations scores than do boys on the SDQII). An examination of age effects suggests that self-concept scores generally decline for both genders during preadolescence and early adolescence (i.e., grades 8/9), level out, and then increase through late adolescence and early adulthood. The only age by gender interaction reported by Marsh (1990a) was for the physical appearance scale. Gender

differences favored girls at the younger ages (primary grades) but favored boys at all other ages, particularly during adolescence (Marsh, 1990a).

Similarly, other studies have found that children's general self-concept declines immediately after the transition to junior high school (Simmons, Rosenberg, & Rosenberg, 1973; Wigfield, Eccles, Mac Iver, Reuman, & Midgley, 1991) and gradually increases again during the adolescent period (Bachman, O'Malley, and Johnston, 1978; McCarthy & Hoge, 1982; O'Malley & Bachman, 1983; Silbereisen & Zank, 1984). Harter (1993) has additionally found that, beginning in junior high school and continuing into high school, females consistently obtain lower general self-esteem scores than do males. In corroboration of Marsh's (1990a) findings, other investigators have found that boys report higher self-concepts of ability in the areas of sports, math, and physical appearance, whereas girls report higher self-concepts of ability in English (Hagborg, 1993; Harter, 1993; Meece, Parsons, Kaczala, Goff, & Futterman, 1982; Wigfield et al., 1991). These gender differences appear to emerge prior to early adolescence (Wigfield et al., 1991).

Association Between Self-concept and Depressive Phenomena

Numerous theoretical models of adult depression have incorporated variables related to the self (Beck, 1976; Bibring, 1953; Freud, 1968; Higgins, 1987; Rogers, 1951). Moreover, both cross-sectional (Workman & Beer, 1989; Yanish & Battle, 1985) and prospective studies of adolescents have consistently reported an inverse association between self-esteem and depressive symptoms (Allgood-Merten et al., 1990;

Aro, 1994; Harter & Marold, 1989; Hops, Lewinsohn, Andrews, & Roberts, 1990; Reinherz et al., 1993). In spite of the widespread interest and substantial empirical documentation to support multidimensional models of self-concept, few studies have explored the association between specific facets of self and depressive emotions and disorders among adolescents. A brief review of such pertinent research follows.

To investigate the experiential link between low self-esteem and depressed affect, Harter and her colleagues used a variety of research methodologies to discern “What comes first - not liking yourself or feeling depressed?” (Harter & Jackson, 1993; Harter & Marold, 1989). Content analyses of open-ended interviews revealed that those adolescents who indicated the primacy of low self-esteem cited examples of dissatisfaction in three broad areas: physical appearance (71% of all responses), social behavior (e.g., treatment of peers, family members), and competence, primarily in the areas of scholastic and athletic performance (Harter & Marold, 1989). In contrast, those who indicated that the experience of depressive symptoms preceded the experience of low self-esteem generally described events performed by others against the self (e.g., conflict, loss, rejection). These findings were replicated in a follow-up study in which a checklist format was used. Moreover, predicted gender differences in subjects’ responses concerning the etiology of depressed affect were obtained (Harter & Jackson, 1993). Subjects were asked to identify the single most likely cause of their lowered self-esteem leading to depressed affect from a choice of six categories: (a) dissatisfaction with appearance, (b) not liking the way they treated peers, (c) not liking the way they treated parents, (d) dissatisfaction with their scholastic performance, (e) dissatisfaction

with their athletic performance, and (f) dissatisfaction with their behavioral conduct. Harter and Jackson (1993) found that females were more likely than males to endorse physical appearance as the primary cause (36.2% vs. 10.0%), whereas males were more likely than females to select competence (scholastic or athletic; 37.5% vs. 13.4%).

In support of these findings, research has shown that both males and females with elevated scores on self-report measures of depression are more dissatisfied with their bodies than their male and female counterparts who report low levels of depressive symptoms (Rierdan, Koff, & Stubbs, 1987, 1988). However, consistent with the results reported by Marsh and others, among those scoring below the established criterion, boys tend to be more satisfied with their bodies overall than girls (Rierdan et al., 1988). Similarly, in a study of children in the sixth, eighth, and tenth grades, Girgus, Nolen-Hoeksema, and Seligman (1989) found that girls reported greater dissatisfaction with their body images and higher levels of depressive symptomatology than did boys (as cited in Nolen-Hoeksema & Girgus, 1994).

These findings have been corroborated by other studies aimed at examining the association between specific self-concept facets and depression in adolescent inpatient (Evans, Brody, & Noam, in press; King, Naylor, Segal, Evans, & Shain, 1993; Koenig, 1988) and adult psychiatric outpatient samples (Beck, Steer, & Epstein, 1992). Using the Self-Perception Profile for Adolescents (Harter, 1986) to measure adolescents' global judgments of themselves (i.e., general self-concept), as well as in the areas of scholastic competence, social acceptance, athletic competence, physical appearance, job competence, romantic appeal, behavioral conduct, and close friendship, King et al.

(1993) noted that clinically depressed adolescents' reports of depression were negatively correlated with general self-esteem, social acceptance, romantic appeal, and close friendship. Also using Harter's (1986) Self-Perception Profile, Evans et al. (in press) compared the self-perceptions of three groups of adolescents; one group was diagnosed with conduct disorder, the second was comorbid with mood and conduct disorder, and the third was a normal control group. Results indicated that the group diagnosed with conduct disorder reported a more favorable self-perception in the domain of physical appearance than either of the other two groups. However, for all three groups, correlational analyses revealed that reports of depression were more strongly associated with general self-concept, physical appearance, and romantic appeal than with other facets (Evans et al., in press).

Beck et al. (1992) compared men and women with a primary diagnosis of either a mood or an anxiety disorder to determine whether comparable dimensions underlie the self-concepts of male and female psychiatric outpatients assigned to these diagnostic categories. A series of principal component factor analyses revealed that the Beck Self-Concept Test (Beck, Steer, Epstein, & Brown, 1990) was best defined by four factors labelled: Intellectual Ability, Physical Appearance, Virtues/Vices (e.g., greed, selfish, cruel), and Work Efficacy. Results of a multivariate analysis of variance revealed main effects for gender and primary diagnosis but the interaction was not significant. Only the Intellectual Ability scale differentiated between men and women, with men describing themselves as more intellectually able than women. With respect to type of disorder, the mean Physical Attractiveness, Work Efficacy, and Virtues/Vices scores of those with

primary mood disorders were lower than those of the patients diagnosed with anxiety disorders (Beck et al., 1992).

In summary, studies indicate that adolescent males have more favorable emotional stability, general self-concept, physical ability, physical appearance, and math self-concepts than do females, whereas females obtain more positive verbal and honesty/trustworthiness self-concept scores than do males. Findings suggest that gender differences in physical appearance, physical ability, verbal, and math self-concept scores are present prior to early adolescence and persist into young adulthood. In addition to substantiating the influence of general self-concept, studies aimed at examining the association between multidimensional self-concepts and depressive phenomena among adolescents have noted the significance of self-evaluations in the domains of physical appearance, social relations (e.g., social acceptance, romantic appeal, close friendship, treatment of peers, family members), and athletic and scholastic competence. Moreover, gender differences have been cited, with reports indicating that physical appearance is a more likely etiological factor for girls than for boys, whereas athletic and scholastic competence are more likely to influence the development of depressive symptoms for boys than for girls. In addition to reporting lower mean scores in the areas of Work Efficacy and Virtues/Vices, Beck and his colleagues (1992) similarly found that adult psychiatric patients diagnosed with a primary mood disorder reported greater dissatisfaction in the area of Physical Attractiveness than those diagnosed with an anxiety disorder. However, only Intellectual Ability differentiated between men and women, with men obtaining higher scores than women.

The Relevance of Stress as a Predictor, Correlate, and Consequence of Depressive Symptoms

Research examining the association between stress and psychological and physical symptoms traditionally has focused on the relevance of stressful life events and severely vexing situations (e.g., Holmes & Rahe, 1967; Kessler, Price, & Wortman, 1985). Over the past several years, an impressive body of evidence linking stressful life events with the onset of a wide variety of psychological and physical health outcomes has been documented (e.g., Dohrenwend & Dohrenwend, 1974; Dohrenwend, Krasnoff, Askenasy, & Dohrenwend, 1978). More recently, researchers have begun to examine the relevance of minor events, often referred to as daily hassles, as a correlate, predictor, and consequence of psychological symptoms (Kanner, Coyne, Schaefer, & Lazarus, 1981; Monroe, 1983).

According to Kanner et al. (1981), “hassles are the irritating, frustrating, distressing demands that to some degree characterize everyday transactions with the environment” (e.g., misplacing or losing something; Kanner et al., 1981, p. 3). Research has demonstrated that measures of daily hassles are superior to life events measures in predicting concurrent and subsequent psychological symptoms and somatic health (e.g., DeLongis, Coyne, Dakof, Folkman, & Lazarus, 1982; Holahan & Holahan, 1987; Kanner et al., 1981; Monroe, 1983), and that daily hassles mediate the association between life events and psychological symptoms (Pearlin, Lieberman, Meneghan, &

Mullen, 1981; Wagner, Compas, & Howell, 1988). Moreover, although numerous studies have substantiated the association between major life events and major depressive disorder (Brown & Harris, 1978; Brown, Bifulco, & Andrews, 1990), research has demonstrated that daily hassles are a better predictor of concurrent and subsequent depressive *symptoms* than are major life events (Compas et al., 1994; Holahan & Holahan, 1987; Kanner et al., 1981; Monroe, 1983). However, a review of the current literature suggests an apparent lack of specificity in the association between daily hassles and depressive symptoms (Compas et al., 1994; Robinson et al., 1995). Daily hassles also have been associated with anxiety symptoms, externalizing behavior problems, physical health problems, and poor academic performance (see Compas et al., 1994 for a review).

Theoretical perspectives regarding the influence of stress in the development of depressive phenomena have generally considered the interaction between stress and personal vulnerability within the context of diathesis-stress models of psychopathology (e.g., Monroe & Simons, 1991; Nolen-Hoeksema, 1994). Traditional formulations of the diathesis-stress model assumed “that until stress activates the diathesis, the predisposition is essentially inconsequential” (Monroe & Simons, 1991, p. 410). More current formulations of the model, particularly as they pertain to cognitive diatheses and depressive phenomena, recognize that the diathesis may influence the individual’s perception of daily life and thereby his/her reporting of daily hassles (e.g., Compas et al., 1994; Hammen, 1991; Monroe & Simons, 1991; Simons, Angell, Monroe, & Thase, 1993). Specifically, consistent with information-processing theory, it has been suggested

that cognitive structures such as self-concept guide the manner in which information is attended to, stored, and retrieved and the manner in which behavior is organized (Markus, 1977; Pierce, Sarason, & Sarason, 1992; Swann, 1983; Swann & Read, 1981).

Similarly, although early studies investigating the relation between daily hassles and depressive symptoms tended to focus on one direction of effect, the causal effect of hassles on symptoms, more recent studies have been aimed at also exploring the influence of depressive symptoms on hassles. Hammen (1991, 1995) has proposed a stress generation model of depression in which depressed persons are thought to play an active role in maintaining their depression through the generation of additional stress, particularly in the interpersonal domain. Consistent with this model, studies have found a prospective association between initial depressive symptoms and stress (Cohen, Burt, & Bjorck, 1987; Davila, Hammen, Burge, Paley, & Daley, 1995).

To summarize, these findings highlight both the concomitant and reciprocal association between daily hassles and depressive symptoms. Moreover, consistent with conceptions of the self as object and as agent, and with traditional and contemporary formulations of diathesis-stress models, results suggest that the self-concept may be relatively passive and/or instrumental in influencing the development of depressive symptoms. That is, the influence of self-concept as a diathesis may be limited to one's self evaluation under conditions of stress or, consistent with conceptions of the self as agent, one's self-concept may actively guide the processing of social and environmental information and hence effect the reporting of daily hassles.

Unfortunately, in spite of the widespread interest in the utility of daily hassles in predicting psychological and physical symptoms, a relatively brief and psychometrically sound measure of daily hassles for adolescents was unavailable at the onset of this study. To be specific, four measures were available for consideration (Bobo, Gilchrist, Elmer, Snow, & Schinke, 1986; Compas, Davis, Forsythe, & Wagner, 1987; Kanner, Feldman, Weinberger, & Ford, 1987; Rowlison & Felner, 1988). The scales developed by Bobo and colleagues (1986) and by Kanner et al. (1987) were designed for use with very young adolescents and standardized with grade six students. A third measure, the Daily Hassles Questionnaire, was modelled after the adult Daily Hassles Scale (Kanner et al., 1981) and revised to include items (e.g., “concerns about family not having enough to eat”) that reflected the inclusion of low-SES students in the sample being studied (Rowlison & Felner, 1988, p. 434). Finally, the Adolescent Perceived Events Scale (APES), developed by Compas et al. (1987), was comprised of 200 items, some of which appeared to overlap with measures of self-concept (e.g., “negative feelings or worry about your appearance”) and depressive symptoms (e.g., “weight change”; “change in eating habits”; “change in sleep habits”). The use of the first three measures was deemed inappropriate in view of the demographic differences between the standardization samples and the middle adolescent sample to be used in the current study. Use of the APES was prohibited due to the length of the scale and the possible overlap between this and other measures to be used in the study. Accordingly, a secondary aim of the current dissertation was to develop and assess the psychometric properties of an adolescent daily hassles measure.

Overall Summary of the Literature

The influence of self-concept and stress (i.e., daily hassles) in the development and maintenance of depressive symptoms is supported by the current literature. The primary purpose of this dissertation was to investigate the concomitant and prospective association between self-concept, daily hassles, and depressive symptoms. Given the overlap between depressive and anxiety symptoms, the association between these constructs and symptoms of anxiety also was considered of primary import. The secondary aim was to develop a parsimonious and psychometrically valid measure of daily hassles.

The existing literature suggests that the overlap between depressive and anxiety symptoms is additionally shared with self-concept. Moreover, adolescent girls consistently report higher levels of both depressive and anxiety symptoms than do boys (Nolen-Hoeksema & Girgus, 1994; Rohde et al., 1991; Schonert-Reichl & Offer, 1992). Studying the prospective association among self-concept, daily hassles, depressive and anxiety symptoms may therefore inform our understanding of the etiology and course of such symptomatology, as well as the observed gender difference in the self-reported levels of depressive and anxiety symptoms.

In spite of a persuasive body of evidence to suggest that self-concept cannot be adequately understood without taking into account its multidimensionality, few studies have been aimed at investigating the association between multidimensional self-concepts

and symptoms of depression or anxiety. Those studies which have considered such an association have generally underscored the significance of physical appearance, in addition to general self-concept. This pattern of results is consistent with those that have found age and gender effects for both of these variables, with studies showing that gender differences in self-evaluations favor boys, particularly during adolescence. Indeed, as noted earlier, this is also the period in which gender differences in rates of depressive phenomena are clearly established and these differences persist into adulthood. The significance of self-evaluations in other specific domains (e.g., social, athletic, scholastic competence) also have been noted but results seem to vary as a function of the methodology, sample, and/or instrumentation employed. Considered collectively, these findings suggest that studying multidimensional self-concepts may be particularly worthwhile in advancing our understanding of the increased prevalence and observed gender difference in depressive symptoms during adolescence.

The current dissertation builds upon previous research in a number of ways. First, for the most part, previous studies have generally employed a cross-sectional design; consequently, it is impossible to discern whether negative self-evaluations in specific domains precede or are a consequence of emotional distress. Although Harter and her colleagues considered the issue of temporal precedence, the ability to draw decisive conclusions from their findings is limited by their use of a retrospective design. The prospective association (six-month time interval) between self-concept, daily hassles, depressive and anxiety symptoms was considered in this study. Second, only one of the studies reviewed investigated the associations among multidimensional self-concept,

depression, and anxiety. Unfortunately, although Beck and his colleagues noted that their sample was not experiencing “pure” forms of either anxiety or depression, there was no attempt to statistically control for the overlap between these disorders. Levels of symptomatology at Time 1, as well as the overlap between depressive and anxiety symptoms, were statistically controlled in the present study in those analyses aimed at investigating the influence of self-concept and daily hassles in the prediction of depressive and anxiety symptoms. Finally, to date, most of the studies aimed at investigating the association between multidimensional self-concepts and depressive phenomena among adolescents have used clinical samples. Although studies suggest that self-concept is a core feature of depression and anxiety as they are conceptualized at the level of symptoms or disorders, it is possible that the facets found to be the strongest correlates of depressive and anxiety disorders differ from those pertaining to symptoms. The importance of studying depressive symptoms is affirmed by those findings which indicate that depressive symptoms are correlated with significant impairment in school and peer functioning (Gotlib et al., 1995) and are risk factors for the development of diagnosable episodes of depression (Compas et al., 1993; Lewinsohn & Rohde, 1993). Understanding the risk factors associated with depressive symptoms may have important implications for preventing the development of such symptomatology.

To reiterate, the principal goal of the current dissertation was to investigate the concomitant and prospective associations among self-concept, daily hassles, and depressive and anxiety symptoms. In order to conduct a thorough study of the relations among these constructs, a relatively brief and psychometrically sound measure of daily

hassles was needed. Consequently, the secondary purpose of this dissertation was to develop and validate such a measure for adolescents. These goals were pursued through two separate studies. The first study was aimed at developing and assessing the psychometric adequacy of a daily hassles scale. Two independent samples of adolescents participated in this study, a group of early adolescents ($N = 164$; mean age = 13.09 years) and a group of adolescents 13 through 18 years of age ($N = 262$; mean age = 16.62 years). The second study was aimed at testing specific hypotheses regarding the relations among self-concept, daily hassles, and depressive and anxiety symptoms. A sample of middle adolescents ($N = 338$; mean age = 15.65 years) participated in the latter study at two time points, approximately six months apart. This sample was chosen on the basis of findings which indicate that gender differences in the rates of depressive phenomena, as well as in specific self-concept facet scores, are clearly established by mid-adolescence. Specific hypotheses pertaining to this latter study are now presented.

Hypotheses to be Tested

Important findings from previous research led to the hypotheses to be tested in the second study. First, compatible with current conceptions of negative affectivity and with findings which suggest that stress is a nonspecific risk factor for a variety of symptoms and disorders, it was hypothesized that a global diathesis-stress model would be similarly tenable in the prediction of depressive and anxiety symptoms. In particular, consistent with traditional explications of diathesis-stress models and with conceptions of

the self as object, it was predicted that low general self-concept scores would represent diatheses. As such, individuals with low self-concept scores were expected to be more likely to develop depressive and anxiety symptoms under conditions of high stress than those individuals with high general self-concept scores. Second, based on previous findings, a prospective association between physical appearance and depressive symptoms was predicted, but only for girls. Given the paucity of research and discrepancy in findings pertaining to the association between multidimensional self-concepts, depressive and anxiety phenomena, predictions regarding the etiological influence of other specific facets were not made. Rather, exploratory analyses were conducted to discern which specific facets are the best predictors of depressive and anxiety symptoms for boys and girls and whether these facets are also those for which gender differences in mean scores have been obtained.

Finally, congruent with contemporary formulations of the diathesis-stress model and with abstractions of the self as agent, two alternative models for understanding the influence of general self-concept on the development and maintenance of depressive symptoms were hypothesized. The first specified model postulated that daily hassles mediate the influence of general self-concept on anxiety symptoms and that anxiety symptoms temporally precede the development of depressive symptoms. In particular, it was predicted that perceptions of daily hassles are guided by one's self view, such that individuals with unfavorable self-perceptions tend to perceive their environments in a similarly negative manner. The model additionally postulated a direct causal path between general self-concept and anxiety symptoms. Compatible with the theoretical

formulation advanced by Dobson (1985) and with the empirical findings of Kovacs et al. (1989) and Reinherz et al. (1989), a temporal association in which anxiety symptoms precede the development of symptoms of depression was postulated. The second model hypothesized that depressive symptoms at Time 1 generate daily hassles at Time 2, both directly and indirectly through their influence on general self-concept. Schematic representations of Models 1 and 2 are presented in Figures 5 and 6, respectively.

As was stated previously, empirical tests of these hypotheses required the use of a parsimonious, unconfounded, and psychometrically sound measure of daily hassles for adolescents. Recognizing that analyses pertaining to the second study are dependent upon findings based on the first, the method, results, and discussion sections of Study 1 are presented prior to presenting the methodology, results, and discussion sections of Study 2. The general implications of the findings, as well as the limitations of the research, are then discussed.

STUDY 1: DEVELOPMENT AND VALIDATION OF A MEASURE OF DAILY HASSLES FOR ADOLESCENTS

The purpose of Study 1 was to develop and validate a measure of daily hassles for adolescents 13 through 18 years of age. This study represented the second stage of questionnaire construction. The initial stage involved conducting focus groups with two separate groups of adolescents aged 13 through 18.³ Students were asked to discuss the types of daily hassles they experience. On the basis of these focus groups, an initial pool of 37 items was generated. The aim of the current study was to examine the factor structure and psychometric properties of the 37-item Adolescent Daily Hassles Inventory (ADHI). In an attempt to maximize the parsimony of the measure without relinquishing statistical plausibility (i.e., by retaining too few items on each subscale), aberrant items were identified and deleted with the intent of reducing the number of subscale items as much as possible.

A thorough assessment of the psychometric properties of the hassles measure was made possible through the inclusion of the two samples who participated in Study 1, as well as the third sample who participated in Study 2, in those analyses aimed at

³A focus group is a qualitative approach to data collection wherein a number of respondents participate in a group discussion on a particular topic under the guidance of a moderator (readers are referred to Coyne & Calarco, 1995 for a more thorough review and application of the focus group methodology). The focus group methodology was employed in an effort to gain adolescents' perspective of the types of daily hassles they experience. This methodology was considered preferable to alternative methods such as relying on the views of professionals in generating specific items or amassing items on the basis of previously developed self-report questionnaires.

evaluating the measure. Readers are referred to the method section of Study 2 for a complete description of the third sample.

Method

Subjects and Procedure

Two independent samples were invited to participate in Study 1: (a) grade 8 students from a suburban high school in Vancouver, Canada, and (b) students enrolled in “Work & Learn” programs (i.e., alternative education programs) within the same school district. Hereafter, for ease of exposition, these samples are referenced as Sample 1 and Sample 2, respectively. Sample 3 refers to those subjects who participated in Study 2.

Sample 1. Informed consent was obtained from a total of 164 grade eight students (88 males, 74 females) and their parents. The gender of the participant was not identified for two of the subjects. Although the age of the sample ranged from 11 to 15 years, the majority of subjects were 13 years of age ($n = 124$) and the mean age was 13.09 years. The sample was comprised of a multiethnic group, with most of the participants identifying English as the first language spoken at home ($n = 115$). Based on students’ responses, it was indicated that the proportion of parents who had attained a high school education was approximately equal to those who had received a college or university education. Specifically, 36.6% of mothers and 35.4% of fathers completed high school, whereas 37.2% of mothers and 35.3% of fathers had received a college or university education.

Sample 2. A total of 262 adolescents (126 males, 136 females) and their parents consented to participate in the study. Although the age range of subjects was 13 through 18, the majority of subjects were between the ages of 15 and 18 ($n = 259$) and the mean age was 16.62 years. Again, the sample was comprised of a multiethnic group, with most of the subjects identifying English as the first language spoken at home ($n = 247$). Regarding the educational status of their parents, subjects indicated that the majority of parents had attained a high school education (i.e., 61.5% of mothers and 48.1% of fathers).

Subjects from both samples were administered the same questionnaire package during a one-week period at the end of November. In an effort to maximize standardization, teachers were trained to administer questionnaires. All subjects were assured that confidentiality would be maintained and testing took place in the context of intact classes, with the researcher or a teacher administering the questionnaires. Subjects were asked to carefully read the instructions for each questionnaire and further elaboration or clarification was provided upon request. All subjects in Sample 1 completed the questionnaires during the same afternoon. To accommodate the varying schedules of students in the Work & Learn program, students in Sample 2 were administered the questionnaires over a two-day period. Measures pertinent to assessing the reliability and validity of the ADHI were six of several measures included in the questionnaire package. Although additional measures were included, they are not of relevance to the current study and therefore will not be discussed in this context (see Appendix A). Relevant measures include: (a) a measure of daily hassles, (b) a measure

of general self-esteem, (c) questions aimed at assessing somatic complaints, (d) a measure of life satisfaction, (e) a measure of perceived stress, and (f) a demographic questionnaire.

Measures

Adolescent Daily Hassles Inventory (ADHI). As was stated previously, an initial pool of 37 items was generated on the basis of focus groups and, at the request of school board officials, three items (items 38 through 40) were added to the measure. From the perspective of school board personnel, the additional *hassles* items were of particular relevance to the samples being studied and could be of use in developing and implementing programs aimed at providing additional support for students. Because the inclusion of additional items would not jeopardize the overall purpose of the study, their request was granted. The readability of the 40-item instrument was assessed through Microsoft Word. Results revealed a Flesch-Kincaid grade level index of 7.7, indicating that the document could easily be understood by students in and beyond the eighth grade.

Subjects were asked to complete the questionnaire by rating how much each item had been a hassle for them over the past week. Students indicated their response on a 7-point Likert-type scale ranging from “not at all” to “very much”. For the purposes of the current study, all analyses were aimed at assessing and refining the 37-item ADHI.

Self-esteem Scale (SES; Rosenberg, 1965). The Rosenberg Self-esteem Scale is a 10-item unidimensional scale, designed to assess adolescents’ global feelings of self-

worth or self-acceptance. Subjects are asked to rate the degree to which each item corresponds to their self-perceptions on a 7-point Likert-type scale. Total scores range from 10 to 70, with higher scores representing higher self-esteem.

Estimates of internal consistency range from .72 (Dobson, Goudy, Keith, & Powers, 1979) to .88 (Fleming & Courtney, 1984). Fleming and Courtney (1984) reported a test-retest correlation of .82 for a one-week interval. Evidence of convergent validity also has been obtained through reported associations between the SES and many relevant constructs. The Rosenberg scale correlated .72 with the Lerner Self-esteem Scale (Savin-Williams & Jaquish, 1981). Moreover, Fleming and Courtney (1984) found negative correlations between the SES and anxiety ($r = -.64$), depression ($r = -.54$), and anomie ($r = -.43$). In addition, they reported a correlation of .33 between the SES and social desirability (Fleming & Courtney, 1984).

Physical Health Symptoms. This scale consists of five items aimed at assessing common somatic complaints. The composite of items was derived from other physical symptom questionnaires (e.g., Hopkins Symptom Checklist, Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974; PILL, Pennebaker, 1982; Health Questionnaire, Rowlison & Felner, 1988). Subjects are asked to rate how often they have experienced each symptom during the past term on a scale from 1 ("never or almost never") to 7 ("experienced more than once a week"). Estimates of internal consistency reliability were calculated separately for Samples 1 and 2. A coefficient alpha of .75 was obtained for both samples.

Satisfaction with Life Scale (SWLS; Deiner, Emmons, Larsen, & Griffin, 1985).

The SWLS is a five-item scale aimed at assessing global life satisfaction, the cognitive component of subjective well-being. Subjects are asked to rate the degree to which they agree with each statement on a 7-point Likert-type scale, ranging from “strongly disagree” (1) to “strongly agree” (7). Total scores for the questionnaire range from 5 to 35, with higher scores indicating greater satisfaction.

Deiner et al. (1985) reported a coefficient alpha of .87 and a test-retest reliability (two-month interval) coefficient of .82 for a sample of college students. Expected correlations between the SWLS and a variety of subjective well-being and personality measures supported the validity of the SWLS. For example, correlations between the SWLS and other measures of subjective well-being for two separate university samples were as follows: Cantril’s (1965) Self-Anchoring Ladder ($r = .62$ and $.66$), Andrews and Withey’s (1976) D-T Scale ($r = .68$ and $.62$), Bradburn’s (1969) Positive ($r = .50$ and $.51$) and Negative Affect Scales ($r = -.37$ and $-.32$). Moreover, scores on the SWLS correlated .02 with the Marlowe-Crowne social desirability scale, .54 with Rosenberg’s (1965) Self-Esteem Scale, and $-.48$ with neuroticism (Deiner et al., 1985).

Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983). The PSS is a global measure of stress aimed at assessing the degree to which situations in one’s life are appraised as stressful. From this perspective, an event is appraised as stressful if: (a) it is considered threatening or otherwise demanding, and (b) insufficient resources are available to cope with the situation. Subjects are asked to rate how often they felt or

thought a certain way during the past month (e.g., unable to control important things in life, felt nervous and “stressed”) on a 5-point scale.

The validity and reliability of the PSS was assessed on the basis of three independent samples: two college student samples and a smoking-cessation sample (i.e., participants in a smoking cessation program). Coefficient alpha reliability ranged from .84 to .86 for the three samples. Test-retest reliability coefficients were .85 (college student subsample) and .55 (smoking-cessation sample) for two-day and six-week intervals, respectively. The PSS also was significantly correlated ($r = .16$, $p < .01$) with physical symptoms for one of the college student samples (Cohen et al., 1983).

Statistical Analyses

The psychometric properties of the ADHI were examined through a number of analytic procedures using each of the three samples outlined above. Analyses were conducted and will be presented in six major stages. First, using Sample 1, exploratory factor analyses were used to identify the most clearly interpretable and parsimonious set of viable items and internal consistency reliability analyses were used to determine the degree to which each item was reliable. Second, based on these findings, as well as on developmental and theoretical considerations, the factorial structure of the ADHI was tested on Sample 2 using confirmatory factor analyses. Given findings of inadequate fit and sound empirical and statistical justification for doing so, the model was respecified to include those parameters that would contribute most to a significantly better fitting model. Third, the final best fitting model from Stage 2 analyses was tested with Sample

3. Fourth, tests of invariance (i.e., equivalency) of the factorial measurement (i.e., scale items) of the ADHI and its underlying latent structure (i.e., relations among subscales) were conducted across Samples 2 and 3. Fifth, the convergent and discriminant validity of the ADHI was evaluated by examining the association between ADHI subscales and related constructs using Samples 1 and 2. Finally, the internal consistency reliability was evaluated using Samples 2 and 3 and the test-retest reliability (6-month interval) of the ADHI was evaluated using Sample 3.

Prior to conducting the analyses outlined above, relevant variables were examined through various SPSS/Windows programs for accuracy of data entry, missing values, and fit between their distribution and the underlying assumptions of multivariate normality associated with the conduct of factor analysis. Findings based on these preliminary analyses for each of the three samples will be presented first, followed by a summary of the results of those analyses which were aimed at evaluating the psychometric adequacy of the ADHI.

Results

Preliminary Analyses

Sample 1. Preliminary analyses of the ADHI revealed some missing data (less than 5%) that were randomly distributed across items (see Muthén, Kaplan, & Hollis, 1987). Although the ADHI is intended for use with adolescents aged 13 through 18, analyses comparing 12-year-old ($n=12$) with 13- and 14-year-old students in this sample

revealed no significant differences between the groups on variables of interest. Consequently, in an effort to maximize the variable/case ratio, subjects ages 12 through 14 were included and mean item values were substituted for missing data. Of these 163 cases, 4 (3 males, 1 female) were identified as multivariate outliers and subsequently deleted. This left a total of 159 subjects (84 males, 73 females; 2 cases did not report their gender). This resulting sample size is admittedly low and certainly highlights the importance of conducting cross-validation procedures.

The data were normally distributed, with skewness values ranging from $-.24$ to 1.56 (mean $\underline{SK} = .26$) and kurtosis values ranging from -1.37 to $.90$ (mean $\underline{KU} = -.91$) (see Muthén & Kaplan, 1985). Inspection of item correlations revealed the matrix to be factorable; most correlations were $>.30$ and Kaiser's measure of sampling adequacy (KMO) was $.86$. Finally, there was no evidence of multicollinearity or singularity (i.e., all correlations $\leq .61$).

Sample 2. Again, in an effort to maximize the case/variable ratio, mean item values were substituted for those missing data ($<5\%$) that were randomly distributed across items (see Muthén, Kaplan, & Hollis, 1987). Of the original 262 cases, 4 (3 males, 1 female) were identified as multivariate outliers and subsequently deleted. Analyses were therefore based on a sample of 258 subjects (123 males, 135 females). In general, the data were normally distributed; skewness values ranged from $-.65$ to 2.29 (mean $\underline{SK} = .21$) and kurtosis values ranged from 1.34 to 4.63 (mean $\underline{KU} = -.78$) (see Muthén & Kaplan, 1985). There was no evidence of multicollinearity or singularity (i.e., all correlations $\leq .56$).

Sample 3. All subjects who participated in the first testing session of the second study were included in these analyses. Preliminary analyses of the ADHI revealed very little missing data which were randomly distributed across items (<1%); mean item values were substituted for those missing data. Of the original 338 cases, 5 were identified as multivariate outliers and deleted from subsequent analyses (2 males, 3 females). Further analyses were therefore based on a sample of 333 subjects (132 males, 201 females). Most of the items were normally distributed, with skewness values ranging from -.44 to 1.87 (mean SK=.22) and kurtosis values ranging from -1.35 to 2.51 (mean KU=-.74) (see Muthén & Kaplan, 1985). Finally, there was no evidence of multicollinearity or singularity (i.e., all correlations $\leq$.62).

Stage 1: Exploratory Factor and Item Reduction Analyses

As an initial attempt to identify the optimal number and content of subscales, exploratory factor analyses (EFA) were conducted using Sample 1. Next, subscale items were evaluated on the basis of numerous statistical and practical criteria. In an attempt to create the most parsimonious and statistically valid and reliable instrument, the ultimate goal was to reduce the number of subscale items as much as possible while retaining a consistent number of items on each subscale. The method of analysis and criteria used for evaluating factorial structure, as well as the results of EFA procedures, will be presented first, followed by a description of the method of analysis and criteria used to reduce the number of items.

All exploratory factor analyses were based on maximum likelihood extraction procedures with oblique rotation. A series of three- through six-factor solutions were considered, as well as a computer-generated solution. Although the chi-square (χ^2) statistic traditionally has been used to judge the degree of fit between the observed and reproduced correlation matrices, the sensitivity of the χ^2 statistic to sample size has been well documented (Byrne, 1989, 1994a; Tabachnik & Fidell, 1996). Consequently, numerous other criteria were considered also in judging the adequacy of factorial solutions. These were the percentage of variance explained, the number of iterations, and the percentage of residuals greater than .05 (i.e., the magnitude of the residuals indicates how well the fitted model reproduces observed correlations). Additionally, the Scree Test (Cattell, 1966), outliers among variables, and internal consistency of the factors (based on the squared multiple correlations of factor scores predicted from scores on observed variables) were considered. Beyond these statistical criteria, however, the substantive meaningfulness of the solutions was given prime consideration.

Consistent with traditional procedures, loadings from the factor pattern matrix were interpreted and only variables with loadings $\geq .30$ were considered to be meaningful (Gorsuch, 1983; Tabachnik & Fidell, 1996). The three-factor and four-factor solution, as well as those based on six or more factors, were rejected in favor of a five-factor solution. Evaluative criteria pertinent to all solutions are summarized in Table 1.

Within this framework, the pattern of loadings bore some resemblance to the initial impressions formed through discussions with high school student focus groups. Five factors emerged that could best be defined as Academic, Interpersonal Concerns,

Uncertainty about the Future, Achievement, and Peer & Family Relations. Results are presented in Table 2. Examination of the factor correlation matrix revealed several correlations exceeding .30, indicating enough overlap in variance among factors to warrant oblique rotation (Tabachnik & Fidell, 1996).

That the five-factor structure was considered optimal in representing the ADHI responses over the statistically better-fitting six- and nine-factor solutions warrants further explanation. First, both the scree plots and number of eigenvalues >1.00 suggested that no more than five factors should be extracted. Second, substantive interpretability and meaningfulness mitigated strongly against the viability of more than five factors. In particular, the six- and nine-factor solutions were fraught with various problems that included multiple cross-loadings, single loadings on one factor, and otherwise nonsensical factor loadings, all of which were strongly indicative of overfactored solutions (Gorsuch, 1983; Walkey, 1983). Overall then, the five-factor solution, which also represented a statistically plausible model, was considered preferable to the other competing structures in terms of substantive clarity, the essence of all factor analytic procedures (Walkey, 1983).

Although a reasonably clear simple structure was obtained, the five-factor solution also had cross loadings (Item 1--getting good grades at school; Item 6--having deadlines; Item 24--being good at the things that I do; Item 16--thinking about whether I'm going to be punished for something I did; Item 36--not finishing things I start; Item 7--making mistakes) and two of the items (Item 17--thinking about what I have to do in the next few days; Item 30--pressure to do drugs, drink alcohol, or smoke cigarettes) did not substantially load on any of the factors (i.e., $\geq .30$). Aberrant items were identified

Table 1

Statistical Summary of Maximum Likelihood Extraction Results

Factorial Solution	χ^2	df ^a	Percent Variance Explained	Number of Iterations	Percent Residuals >.05
computer-generated (9-factor)	362.07	369	48.8	63	13
6-factor	515.11	459	42.7	22	21
5-factor	578.42	491	40.5	16	27
4-factor	667.35	524	37.7	28	33
3-factor	794.10	558	33.9	12	38

^adf = degrees of freedom

Table 2

Summary of Factor Loadings Based on 5-Factor Solution^a

Item	Factor ^b					h ^{2c}
	I	II	III	IV	V	
10 doing homework	.70					.47
1 getting good grades at school	.53			(-.38)		.54
8 being successful at the things I do	.52					.45
29 obeying rules	.50					.45
6 having deadlines	.37			(-.30)		.40
24 being good at the things that I do	.36	(.30)			(.34)	.50
12 relating with my teachers	.35					.30
4 saving money	.35					.27
2 difficulties concentrating	.34					.43
14 taking classes I don't like	.31					.25
20 knowing people are talking about me		-.73				.58
19 being embarrassed		-.67				.54
3 being bullied or teased by other people		-.52				.30
16 thinking about whether I'm going to be punished for something I did		-.31			(.30)	.46
28 questioning the meaning of life			-.79			.59
27 thinking about my future			-.76			.62
31 not knowing what to expect in the future			-.67			.51
25 wondering about someone's health who is close to me			-.50			.33
13 thinking about world problems (e.g., the environment, people starving, racism)			-.45			.22
15 wondering how a problem will turn out			-.40			.38
17 thinking about what I have to do in the next few days						.24
22 not doing well on school assignments				-.78		.61
23 not achieving my personal goals				-.74		.59
9 doing badly on a task				-.49		.45
34 not being able to understand something				-.40		.40
36 not finishing things I start		(-.36)		-.39		.44
7 making mistakes	(.29)			-.35		.34
26 not being given enough responsibility				-.30		.30
32 relating to someone of the opposite sex					.65	.47
33 family living arrangements					.61	.40
18 sexual relations					.56	.35
11 uncertainty about my parents'/stepparents' marriage					.54	.31
37 relations with members of my family/stepfamily					.50	.38
5 fitting in with the "right" group of friends					.41	.37
35 regretting past decisions					.34	.31
21 looking my best					.30	.26
30 pressure to do drugs, drink alcohol, or smoke cigarettes						.20

^aCross-loadings $\leq .30$ are deleted for the sake of clarity and those $\geq .30$ are parenthesized. ^bFactor I = Academic; Factor II = Interpersonal Concerns; Factor III = Uncertainty about the Future; Factor IV = Achievement; Factor V = Peer & Family Relations. ^cCommunality estimate.

and considered for deletion on the basis of the following criteria: (a) whether the item represented a cross-loading or did not load on any of the factors, and (b) whether there was any potential overlap with items measuring symptomatology or self-concept. On the basis of the latter consideration, Item 18 (sexual relations), Item 2 (difficulties concentrating), and Item 32 (relating to someone of the opposite sex) were deleted due to their potential overlap with the BDI, STAI, and SDQII, respectively. Additional items were deleted on the basis of the first consideration, leaving a total of between three and six items on each subscale.

Next, the internal consistency of the three- to six-item subscales was evaluated through SPSS Windows for the purposes of identifying those items which would substantially increase the alpha coefficient if they were deleted. Item 3 (being bullied or teased by other people), which was one of the three items on the Interpersonal Concerns subscale, was shown to be particularly problematic. On this basis, as well as results revealing high kurtosis (4.63 and 2.45) and skewness values (2.29 and 1.83) for Samples 2 and 3, respectively, this item was deleted. In view of the unacceptability of a two-item factor (Gorsuch, 1983), the remaining two items on the Interpersonal Concerns subscale were retained and added to the Peer & Family Relations subscale. Finally, in consideration of the goal of reducing subscale items to four, the internal consistency of the remaining subscales was evaluated and additional items were deleted on the basis of their psychometric properties.⁴ The final model based on factor structure and item reduction analyses is presented in Table 3. Cronbach's alpha coefficients of internal consistency were .78, .76,

⁴The goal of reducing subscale items to four was established because (a) a minimum of four items is needed to form two indicators for each construct in structural equation modeling, and (b) a maximally parsimonious measure is desirable, particularly for use with adolescents (cf. adults), to prevent problems of internal validity due to subject fatigue.

Table 3

Final Subscales Based on Factor Structure and Item Reduction Analyses (Sample 1)**Achievement**

- 9. doing badly on a task
- 22. not doing well on school assignments
- 23. not achieving my personal goals
- 36. not finishing things I start

Uncertainty about the Future

- 13. thinking about world problems (e.g., the environment, people starving, racism)
- 27. thinking about my future
- 28. questioning the meaning of life
- 31. not knowing what to expect in the future

Academic

- 6. having deadlines
- 10. doing homework
- 12. relating with my teachers
- 14. taking classes I don't like

Peer & Family Relations

- 5. fitting in with the "right" group of friends
- 21. looking my best
- 33. family living arrangements
- 37. relations with members of my family/stepfamily

.66, .66, and .84 for the Achievement, Uncertainty about the Future, Academic, Peer & Family Relations, and full scale ADHI (i.e., all 16 items), respectively. The correlation between the revised ADHI presented in Table 3 and the initial 37-item ADHI was .95, $p < .001$.

Stage 2: Confirmatory Factor Analysis (Sample 2)

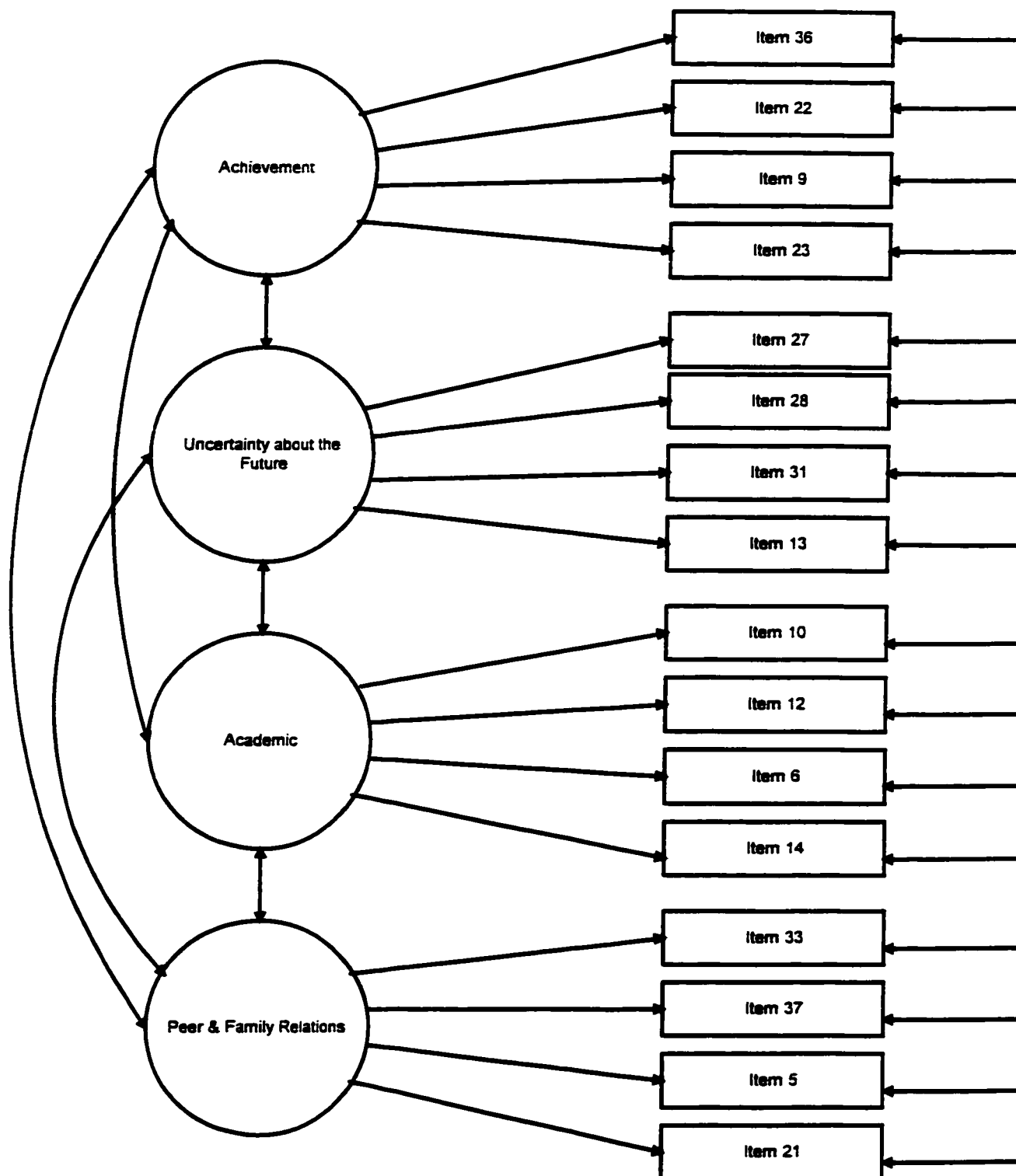
Testing for the factorial validity of the ADHI was based on the analysis of covariance structures within the framework of a confirmatory factor analytic model using the EQS/Windows program (EQS; Bentler & Wu, 1995). Assessment of model fit was based on multiple criteria that included: (a) the χ^2 likelihood ratio statistic, (b) the Comparative Fit Index (CFI; Bentler, 1990), and (c) the substantive meaningfulness of the model (see MacCallum, 1986; Suyupa, Silvia, & MacCallum, 1988). The CFI, a modified version of the Bentler-Bonett (Bentler & Bonett, 1980) normed fit index, has been corrected for sample size dependency and is available through EQS/Windows. The value ranges from zero to one, with a CFI value of $\geq .90$ serving as the conventional lower limit cut-off of acceptable fit (Byrne, 1994a). The Lagrange Multiplier Test (LM-Test), also available through EQS, was used as a *guide* in identifying parameters initially constrained to zero that would contribute most to a significantly better fitting model if these parameters were freely estimated. Consistent with the caveat outlined by Byrne (1994a), post-hoc model fitting was deemed appropriate only when there was sound statistical, theoretical, and empirical justification for doing so.

Consistent with Table 3, the initial CFA model postulated a priori that responses

to the ADHI could best be explained by four factors and that each item would have a non-zero loading on the Daily Hassles factor it was designed to measure and zero loadings on all other factors. It was additionally hypothesized that the four factors would be correlated and that the uniqueness terms (i.e., a composite of specific and random measurement error) associated with each item would be uncorrelated. A schematic representation of this postulated model is presented in Figure 1. By convention, in the schematic presentation of CFA models, unmeasured variables (i.e., factors) are represented by circles or ellipses and measured (i.e., observed) variables (i.e., items) are shown in boxes. An error term is associated with each measured variable; error terms are represented by the unidirectional arrows directed toward the boxes. Curved two-way arrows signify covariances or correlations between pairs of variables. Higher parameter estimates represent stronger associations. The test statistic (parameter estimate divided by its standard error) operates as a *z* statistic in evaluating whether the estimate is statistically significant from zero. Based on an α level of .05, then, a value greater than ± 1.96 represents statistical significance.

As indicated in Table 4, goodness-of-fit for the initially hypothesized 4-factor model of ADHI structure was less than adequate for Sample 2. Specifically, goodness-of-fit values were $\chi^2(98) = 273.68$, $p < .001$, CFI = .79. Moreover, factor loadings for Items 5 (fitting in with the “right” group of friends) and 21 (looking my best) were below the $\geq .30$ criterion. Given findings of inadequate fit, the Peer & Family Relations factor was split to form two separate factors defined as Interpersonal Concerns and Family Relations. This revision was made in light of several theoretical and empirical

Figure 1. Hypothesized four-factor model of factorial structure for the Adolescent Daily Hassles Inventory



considerations. First, numerous theorists have suggested that peer relations tend to become increasingly important and differentiated from family relations during the adolescent period (e.g., Bowlby, 1969, 1988; Erikson, 1968). In view of the discrepancy in age between subjects in Samples 2 and 3 compared with those in Sample 1 (mean age = 16.62 and 15.65 vs. 13.09, respectively), this theoretical tenet appeared particularly relevant. In support of the separation of Family Relations and Interpersonal Concerns factors, Wagner and Compas (1990) found that among junior high school students (mean age = 12.2 years), family events were most highly associated with behavior problems whereas, in the high school sample (mean age = 16.5 years), peer events were more highly associated with psychological symptoms than were other stressful events. Wagner and Compas (1990) concluded that “this progression from family to peers as the domain of greatest psychological import is consistent with some prior studies on the social development of adolescents” (p. 402). Second, consistent with claims that self-concept cannot be adequately understood without consideration of its multidimensionality, a growing body of literature substantiates the claim to obtain greater precision (i.e., consider stress or daily hassles in specific domains) in hypothesis tests involving stress (e.g., Brewer, 1993; Hammen, Ellicott, Gitlin, & Jamison, 1989; Metalsky, Joiner, Hardin, & Abramson, 1993; Turner & Cole, 1994).

Again, given the unacceptability of a two-item factor (Gorsuch, 1983), the internal consistency of the subscales was evaluated for the purposes of identifying those items which would contribute most to the overall homogeneity of the subscales. On this basis, Items 19 and 20 were added to the Interpersonal Concerns subscale and Item 11

was added to the Family Relations subscale. The revised ADHI model is presented in Table 5.

The fit of the hypothesized five-factor model was $\chi^2(142) = 296.63$, $p < .001$, CFI = .85. Examination of the multivariate LM χ^2 coefficients revealed substantial improvement in model fit to be gained from the additional specification of three correlated measurement errors (between Items 12 & 5, 28 & 13, and 5 & 21). Error covariances are not unexpected in the CFA of a single psychological assessment scale and generally represent nonrandom measurement error due to perceived redundancy in item content, response sets, social desirability responding, and the like (see e.g., Byrne, 1988, 1993; Tanaka & Huba, 1984). Associations between items on the same subscale are particularly common. Hence, the association between Items 28 (questioning the meaning of life) and 13 (thinking about world problems, e.g., the environment, people starving, racism) and 5 (fitting in with the “right” group of friends) and 21 (looking my best) are certainly conceivable. The error covariance between Items 12 (relating with my teachers) and 5 (fitting in with the “right” group of friends) is likely due to the common interpersonal relations component inherent in each of the items.

To assess the extent to which a respecified nested model represents an improvement in fit, the difference in χ^2 ($\Delta\chi^2$) can be used to compare models. This differential is itself χ^2 -distributed, with degrees of freedom equal to the difference in degrees of freedom (Δdf). Thus, a significant $\Delta\chi^2$ indicates a substantial improvement in model fit. As shown in Table 4, incorporation of these parameters into the model resulted in a statistically better-fitting model, $\Delta\chi^2_{(3)}=91.22$, $p < .001$. The final model of ADHI structure for Sample 2 is presented schematically in Figure 2.

Table 4

Goodness-of-fit Statistics for Samples 2 and 3

Model	χ^2	df	CFI ^a
<u>Sample 2</u>			
1 Hypothesized 4-Factor Model	273.68	98	.79
2 Hypothesized 5-Factor Model	296.63	142	.85
2 Final Model ^b	205.41	139	.93
<u>Sample 3</u>			
1 Hypothesized Model ^b	306.09	139	.89

Note. ^aComparative Fit Index. ^bHypothesized 5-factor model with three correlated errors (between Items 12 & 5, 28 & 13, and 5 & 21).

Table 5

Revised Subscales Based on Theoretical and Empirical Considerations**Achievement**

- 9. doing badly on a task
- 22. not doing well on school assignments
- 23. not achieving my personal goals
- 36. not finishing things I start

Uncertainty about the Future

- 13. thinking about world problems (e.g., the environment, people starving, racism)
- 27. thinking about my future
- 28. questioning the meaning of life
- 31. not knowing what to expect in the future

Academic

- 6. having deadlines
- 10. doing homework
- 12. relating with my teachers
- 14. taking classes I don't like

Interpersonal Concerns

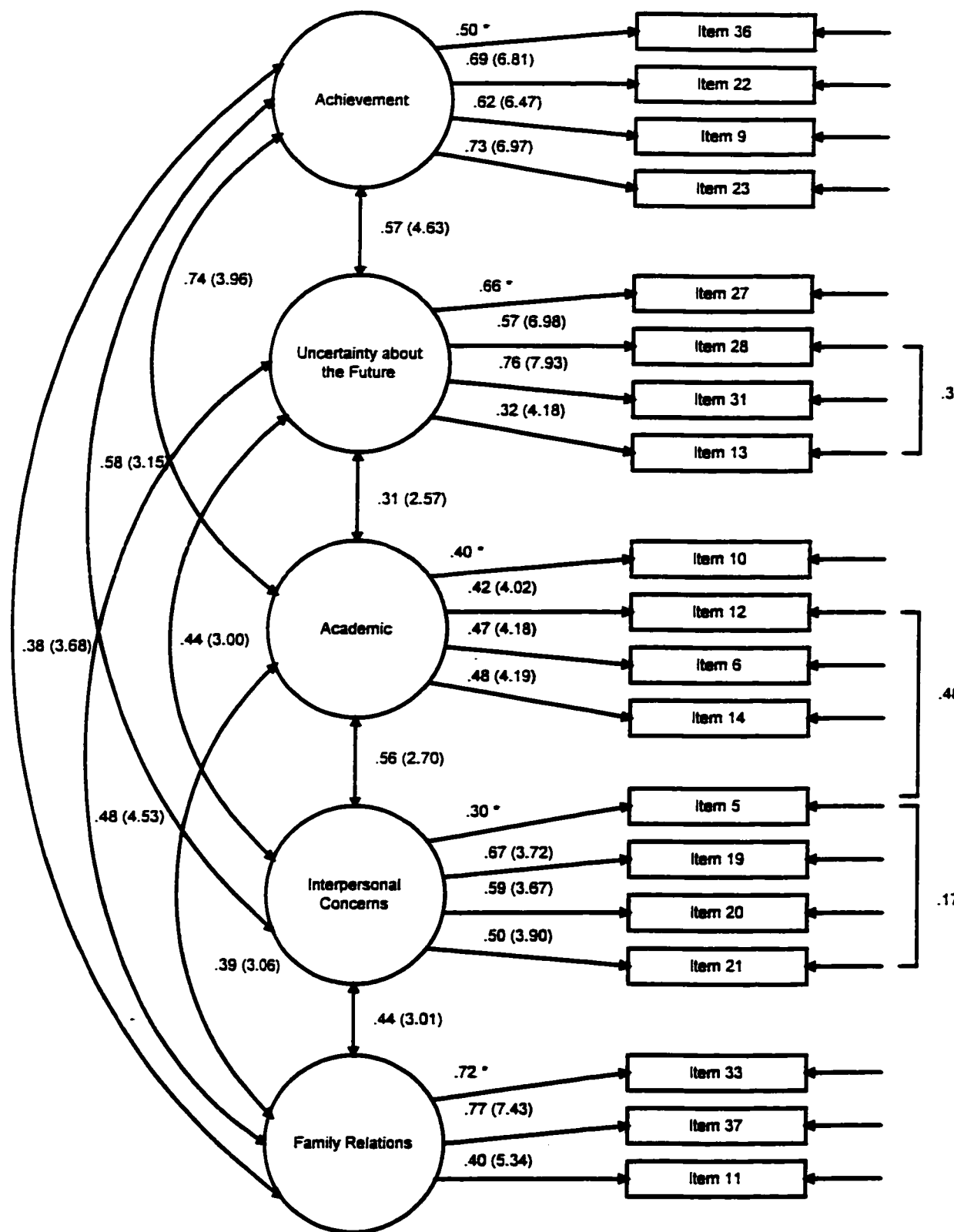
- 5. fitting in with the "right" group of friends
- 19. being embarrassed
- 20. knowing people are talking about me
- 21. looking my best⁵

Family Relations

- 11. uncertainty about my parents'/stepparents' marriage
- 33. family living arrangements
- 37. relations with members of my family/stepfamily

⁵Recognizing that this particular item may be gender-specific (i.e., more likely to be perceived as a hassle by girls than by boys), item scores for boys and girls in Sample 3 - the sample to be used for analyses aimed at examining gender differences - were compared. The item mean for boys ($M=4.05$) was only slightly lower than that for girls ($M=4.28$) and differences were nonsignificant, $p > .05$.

Figure 2. Standardized estimates for final model of ADHI structure for Sample 2.

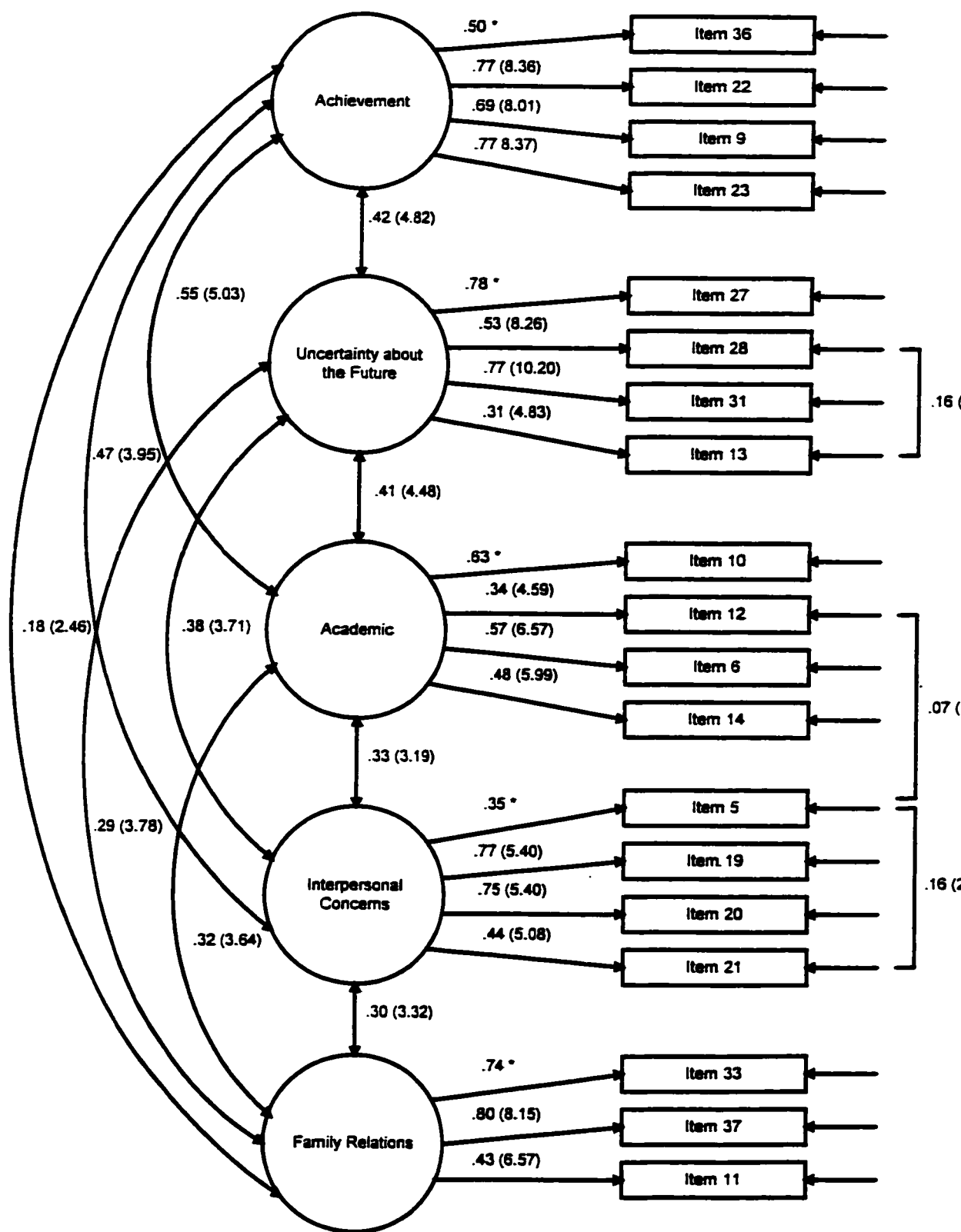


Note. Parameter estimates are standardized and are significant at $p < .05$. Values in parentheses are t-statistics. * denotes parameter fixed to 1.00 for purposes of statistical identification.

Stage 3: Test of the Hypothesized 5-Factor Model (Sample 3)

The final model of ADHI structure, based on analyses conducted with Sample 2, was tested on Sample 3. As such, the CFA model postulated a priori that responses to the ADHI could best be explained by five factors, that the factors would be correlated, and that each item would have a non-zero loading on the hassles factor it was designed to measure and a zero loading on all other factors. The three correlated error terms identified in Stage 2 analyses also were specified. As shown in Table 4, the fit of the model was $\chi^2 (139) = 306.09$, $p < .001$, CFI = .89. Figure 3 provides a schematic representation of the model and, as such, provides an indication of the significance of specific parameters. In particular, findings indicated that all factor loadings were significant and exceeded the conventional .30 criterion. Similarly, parameters representing covariances among factors were significant. However, one of the specified error covariances was not significant (i.e., correlation between Items 5 & 12). Such a discrepancy in fit across Samples 2 and 3 is consistent with evidence which suggests that the model generally fits less well with the validation sample than with the sample to which it was fitted. Because post-hoc model fitting is inherently susceptible to capitalization on chance characteristics of the data, particularly in smaller sample sizes, it is unlikely that a respecified model will fit equally well in a second independent sample (MacCallum, Roznowski, Mar, & Reith, 1994; MacCallum, Roznowski, & Necowitz, 1992). To more rigorously test the equality of factor structure across the two samples, invariance testing was employed.

Figure 3. Standardized estimates for five-factor model of ADHI structure for Sample 3.



Note. Parameter estimates are standardized and are significant at $p < .05$. Values in parentheses are z-statistics. * denotes parameter fixed to 1.00 for purposes of statistical identification.

Stage 4: Testing for Invariance Across Samples

As an extension of the assessment of construct validity of the ADHI, the factorial equivalency across Samples 2 and 3 was tested statistically. As such, the equivalency of the instrument was examined with respect to item measurement (i.e., all item content is interpreted equivalently by both groups) and theoretical structure (i.e., pattern of relations among the underlying factors is the same across groups). Equivalency of the factorial measurement (i.e., scale items) of the ADHI was tested first; underlying latent structure (i.e., relations among subscales) constraints were then introduced while concomitantly constraining all invariant item measurements.

Allowing for partial measurement invariance (see Byrne, Shavelson, & Muthén, 1989; MacCallum et al., 1994), the error covariances identified in stage 2 analyses were left unconstrained across groups. All equality constraints for the specified factor loadings were found to be tenable across groups and, as indicated by a CFI value of .93, the invariant model was well fitting ($\chi^2_{(297)} = 487.76$). Additional tests for invariance of the structural model were similarly indicative of a well-fitting model ($\chi^2_{(307)} = 507.62$; CFI=.92). However, an examination of probability values associated with LM χ^2 univariate and multivariate test statistics suggested that the specification of two cross-group equivalencies were problematic. In particular, (a) the loading of Item 10 (i.e., “doing homework”) on the Academic subscale was no longer invariant across groups and (b) the association between the Academic and Achievement subscales varied across groups.

In view of the demographic differences between the two samples with respect to

academic background, it is not surprising that both of the statistically variant constraints pertain to the Academic subscale. More specifically, students in Sample 2 were enrolled in alternative education programs tailored to suit the needs of students with histories of difficulty in the regular school system, whereas students in Sample 3 were currently enrolled in the regular school system. Indeed, one of the major differences between these educational milieus is the degree of independence conceded to students, with students in Sample 2 afforded much more autonomy than those in Sample 3. Consequently, interpretation of an item such as “doing homework” is likely to differ among groups. Similarly, in view of the fundamental differences in educational milieu and background between these groups, the invariant association between Academic and Achievement subscales is not particularly surprising.

Stage 5: Examination of Convergent and Discriminant Validity

In further support of the validity of the ADHI, correlations between the revised version presented in Table 4 and the initial 40- and 37-item ADHI were found to be .94 and .96, $p < .001$ for Samples 2 and 3, respectively. To assess the convergent validity of the ADHI, correlations between ADHI subscales (and the full scale ADHI) and related constructs were assessed. The ADHI was expected to be negatively correlated with measures of self-esteem and life satisfaction and positively correlated with measures of physical symptoms and perceived stress. As shown in Tables 6 and 7, correlations between ADHI subscales (and the full scale ADHI) and related constructs were low to moderate and were generally significant and in the predicted direction for Samples 1 and

2, respectively. However, it is also important to note that the correlations between the ADHI and related constructs revealed greater support for the convergent validity of the ADHI for Sample 1 than for Sample 2. In particular, obtained correlations between ADHI subscales (and the full scale ADHI) and self-esteem ($M = -.34$ and $-.22$ for Samples 1 and 2, respectively), life satisfaction ($M = -.23$ and $-.17$ for Samples 1 and 2, respectively), physical symptoms ($M = -.39$ and $-.23$ for Samples 1 and 2, respectively), and perceived stress ($M = .33$ and $.09$ for Samples 1 and 2, respectively) were generally higher for Sample 1 compared to Sample 2.

Finally, ADHI subscale scores were able to significantly discriminate between those subjects in Sample 3 (Time 1) who obtained BDI scores reflective of a notable level of distress [i.e., total BDI score of ≥ 16 or endorsement of the third (“I would like to kill myself”) or fourth (“I would kill myself if I had the chance”) statements on item 9 of the BDI) and those who did not. In particular, results of tests for mean differences based on the t -test indicated that those subjects who obtained scores above the established cut-off on the BDI also obtained significantly higher mean scores on the Achievement [$t(336) = -2.42, p < .05$], Uncertainty about the Future [$t(336) = -2.63, p < .01$], Academic [$t(336) = -2.69, p < .01$], Interpersonal Concerns [$t(336) = -2.77, p < .01$], and Family Relations [$t(336) = -5.32, p < .001$] subscales and on the full scale ADHI [$t(336) = -4.80, p < .001$] than those subjects who scored below the cut-off.

Table 6

Correlations Between ADHI and Related Constructs (Sample 1)

Scale	Self-esteem	Life Satisfaction	Physical Symptoms	Perceived Stress
Achievement	-.22**	-.13	.35***	.26***
Uncertainty about Future	-.24**	-.12	.33***	.31***
Academic	-.37***	-.26***	.39***	.33***
Interpersonal Concerns	-.36***	-.30***	.39***	.35***
Family Relations	-.40***	-.27***	.35***	.32***
Full scale ADHI	-.43***	-.29***	.50***	.43***

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 7

Correlations Between ADHI and Related Constructs (Sample 2)

Scale	Self-esteem	Life Satisfaction	Physical Symptoms	Perceived Stress
Achievement	-.30**	-.27***	.25***	.20***
Uncertainty about Future	-.24**	-.13*	.31***	.06
Academic	-.14***	-.14*	.10	.04
Interpersonal Concerns	-.20***	-.09	.14*	.06
Family Relations	-.15***	-.15**	.25***	.07
Full scale ADHI	-.31***	-.23**	.32***	.13*

* $p < .05$. ** $p < .01$. *** $p < .001$.

Stage 6: Examination of Reliability

Internal Consistency. Coefficient alpha estimates of internal consistency for Sample 2 were .72, .69, .50, .61, and .65 for the Achievement, Uncertainty about the Future, Academic, Interpersonal Concerns, and Family Relations subscales, respectively and .81 for the full scale ADHI. Estimates of internal consistency were slightly higher for Sample 3. In particular, coefficient alpha estimates were .78, .70, .58, .68, and .70 for the Achievement, Uncertainty about the Future, Academic, Interpersonal Concerns, and Family Relations subscales, respectively and .82 for the full scale ADHI. The relatively low reliability coefficient for the Academic subscale, particularly for Sample 2, may reflect both the heterogeneity of the items as well as the unique academic milieu characteristic of Sample 2. In summary, the mean alpha values for the Achievement, Uncertainty about the Future, and Academic subscales across Samples 1, 2, and 3 were .77, .73, and .60, respectively. The average estimates of internal consistency across Samples 2 and 3 were .65 and .68 for the Interpersonal Concerns and Family Relations subscales, respectively.

Test-retest. To verify the test-retest reliability of the ADHI, correlations between Time 1 and Time 2 scores on the ADHI subscales and the full scale ADHI were calculated for those subjects in Sample 3 who participated in the study at both time points (6-month interval). Recognizing that the ADHI is a state measure, and consistent with the findings reported by Cohen et al. (1983), lower test-retest correlations are expected as the time interval between testing periods increases. Test-retest correlations were .38, .49, .33, .58., and .56 for the Achievement, Uncertainty about the Future,

Academic, Interpersonal Concerns, and Family Relations subscales, respectively and .53 for the full scale ADHI (all values were significant at $p < .001$).

Summary of Findings

The purpose of Study 1 was to develop and validate a measure of daily hassles for adolescents, the ADHI. The psychometric properties of the ADHI were evaluated in six major stages using three independent samples. First, exploratory factor and item reduction analyses were used with the first sample of early adolescents to generate an initial factor model and to delete aberrant items, with the ultimate goal of reducing the number of subscale items to four. Results revealed that the underlying structure of the ADHI could best be defined by four factors labelled *Academic*, *Achievement*, *Uncertainty about the Future*, and *Family & Peer Relations*. Second, the four-factor model obtained in Stage 1 analyses was tested on a second independent sample of older adolescents. The fit of the four-factor model for Sample 2 was less than adequate. Consequently, in consideration of theoretical tenets and previous empirical findings, the model was revised to reflect a five-factor structure comprised of *Academic*, *Achievement*, *Uncertainty about the Future*, *Interpersonal Concerns*, and *Family Relations* subscales. An improvement in model fit was obtained for the five-factor model and was significantly improved with the additional specification of three correlated measurement errors. Third, confirmatory factor analytic procedures were used with Sample 3 to test the final five-factor model obtained in Stage 2 analyses. As can be

expected, the model fit slightly less well on the validation sample (Sample 3) than the sample on which it was fitted (Sample 2).

To more rigorously test the equivalency of the model across Samples 2 and 3, the fourth stage of analyses involved invariance testing. Tests of invariance were remarkably supportive of the construct validity of the ADHI. With the exception of two constraints, all equality constraints for the factorial measurement and underlying latent structure were found to be tenable. In particular, the loading of Item 10 (i.e., “doing homework”) on the Academic subscale and the association between the Academic and Achievement subscales varied across groups. However, both of these variant constraints are considered reasonable in view of the demographic and academic milieu differences between the two samples.

The fifth stage of analyses involved tests of convergent and discriminant validity. Although correlations between ADHI subscales (and the full scale ADHI) and related constructs (i.e., self-esteem, life satisfaction, physical symptoms, and perceived stress) were low to moderate, many of the correlations were significant and in the predicted direction. Moreover, ADHI subscale and full scale scores were able to significantly discriminate between those subjects in Sample 3 (Time 1) who obtained BDI scores suggestive of a notable level of distress (i.e., total BDI score of ≥ 16 or endorsement of the third or fourth statements on Item 9 of the BDI) and those who did not. In particular, results indicated that those subjects who obtained scores above the established cut-off on the BDI also obtained significantly higher mean scores on each of the subscales, as well as the full scale ADHI. Finally, in further support of the validity of the

ADHI, correlations between the revised version and the initial 40- and 37-item ADHI were .94 and .96, $p < .001$ for Samples 2 and 3, respectively.

In Stage 6, analyses of internal consistency and test-retest reliability were conducted. Mean alpha values for the Achievement, Uncertainty about the Future, and Academic subscales across Samples 1, 2, and 3 were .77, .73, and .60, respectively. Average estimates of internal consistency across Samples 2 and 3 were .65 and .68 for the Interpersonal Concerns and Family Relations subscales, respectively. Estimates of internal consistency for the full scale ADHI were .81 and .82 for Samples 2 and 3, respectively. Test-retest correlations (six month interval) were .38, .49, .33, .58, and .56 for the Achievement, Uncertainty about the Future, Academic, Interpersonal Concerns, and Family Relations subscales, respectively and .53 for the full scale ADHI (all values were significant at $p < .001$).

Discussion

The primary purpose of this dissertation was to examine the association between self-concept, daily hassles, and depressive and anxiety symptoms among a nonclinical sample of middle adolescents. Acknowledging that previous critiques of hassles measures raised concerns regarding the potential confound between measures of hassles and psychological distress (Dohrenwend, Dohrenwend, Dodson, & Shrout, 1984; Dohrenwend & Shrout, 1985), careful attention was paid to the content of specific items and to the potential overlap between items professed to measure hassles and those

intended to measure self-concept, depressive or anxiety symptoms. Similarly, in view of the interest in exploring possible explanations for the observed gender difference in depressive symptomatology, efforts were made to prevent the inclusion of gender-biased items. Of course, assurance of the equality of theoretical relations among the five subscales of the ADHI for adolescent males and females can only be gained through the use of rigorous factor analytic procedures aimed at testing the equivalency of the instrument with respect to item measurement and structure. Future studies may be aimed at testing the invariance of the ADHI across gender.

In spite of the strong support gained for the factorial validity of the ADHI, examination of other aspects of the psychometric adequacy of the instrument revealed some limitations which warrant further consideration and inquiry. In particular, the relatively modest correlations between the ADHI and related constructs are worthy of consideration. Given the potential influence of self-esteem in the prediction of perceived daily stress, as well as the expectation that levels of life satisfaction and physical symptoms may be influenced by perceptions of daily hassles, relatively modest correlations are desirable. Exceedingly high correlations between the ADHI and such constructs may be suggestive of confounding between the measures and be a hindrance to studies aimed at testing the causal ordering of these variables.

Correlations observed in the present study are generally consistent with those reported by other investigators. Kanner et al. (1987) reported a correlation of $-.32$, $p < .001$ between hassles and general self-concept among sixth grade children and a correlation of $-.41$, $p < .001$ with uplift scores partialled out of the correlation. Similarly,

Whisman and Kwon (1993) reported a correlation of $-.30$ between hassles and global self-esteem (as measured by Rosenberg's self-esteem scale) among a sample of undergraduate students. Rowlison and Felner (1988) obtained a correlation of $.51$, $p < .0001$ between daily hassles and physical symptoms among their sample of adolescents from predominantly lower socioeconomic families.

In contrast, the observed correlation between the ADHI and the Perceived Stress Scale (PSS) is considered problematic. There are a number of differences between the two measures which may at least partially account for the modest correlations, especially as noted in Sample 2. First, the PSS uses a one-month time frame whereas the instructions for the ADHI directs students to indicate how much each item has been a hassle for them during the past week. At first blush, this explanation does not seem plausible because it does not account for the discrepancy in correlations between the ADHI and the PSS across Samples 1 and 2. It is possible however, that the discrepancy in findings across the two samples reflects a difference in the stability of ADHI scores. Higher correlations between the ADHI and the PSS are expected for those individuals with relatively stable ADHI scores over a one-month period. Hence, differences in correlations between the ADHI and the PSS across Samples 1 and 2 may be indicative of sample differences in the stability of the ADHI. Unfortunately, the design of Study 1 does not allow for the investigation of this hypothesis.

Second, the PSS was chosen as an index of convergent validity because it was one of the few psychometrically sound and parsimonious measures available at the onset of this study. The PSS was developed and validated with adult samples however.

Although none of the items on the PSS are obviously irrelevant to adolescents, it is possible that moderate correlations between the ADHI and the PSS reflect differences in the age range of subjects used to develop and validate the measures. Third, it is possible that low to moderate correlations between the ADHI and the PSS reflect differences in the specificity of item content. Items on the PSS are very general (e.g., “In the last month, how often have you dealt successfully with irritating life hassles?”; “In the last month, how often have you felt nervous and “stressed?””), whereas the ADHI items are more specific, assessing whether adolescents have experienced particular types of daily hassles (e.g., “relating with my teachers”; “family living arrangements”). Furthermore, items on the PSS tend to focus on feelings about events or the ability to cope with events (e.g., “In the last month, how often have you felt that you were unable to control the important things in your life?”; “In the last month, how often have you felt confident about your ability to handle your personal problems?”) whereas subjects completing the ADHI are asked to indicate the degree to which specific items have represented hassles. Future studies aimed at refining and evaluating the ADHI should further investigate the convergent validity of the ADHI, using measures developed for adolescents which more closely resemble the ADHI in terms of both response metric (e.g., time frame) and item content.

Tests of internal consistency and test-retest reliability yielded findings consistent with those obtained in previous studies aimed at evaluating the psychometric properties of hassles measures. For example, Bobo et al. (1986) reported that the Adolescent Hassles Inventory (AHI; Bobo et al., 1986) could best be defined by eight factors and

that internal consistency coefficients for the factors ranged from .67 to .85; coefficients above .80 were obtained for only two of the eight subscales. Kohn and Milrose (1993) reported reliability data for a recently developed measure of hassles for adolescents; alpha coefficients for the eight subscales ranged from .61 to .79. Similarly, Siedman and colleagues (1995) recently developed and validated a measure of daily hassles for adolescents and reported internal consistency coefficients ranging from .69 to .79 for the five subscales comprising the measure. Test-retest reliability coefficients (10-month interval) ranged from .29 to .52 for the five subscales (Siedman et al., 1995). These values also are compatible with the test-retest data reported by Kanner et al. (1981). The average correlation, based on intensity ratings for nine monthly administrations of the Adult Hassles Scale, was .48 (Kanner et al., 1981). Considered in the context of other recently developed measures, it appears that the ADHI is similarly weak in terms of the internal consistency of specific subscales and superior in other respects (e.g., factorial validity).

The development and validation of the ADHI represents a significant contribution to the literature and is expected to be of substantial interest to clinicians and researchers whose interests bear on understanding the influence of daily hassles in the development and maintenance of psychological and physical symptoms among adolescents. Although other investigators have begun to consider hassles in specific domains, the identification of subscales has been limited to exploratory factor analytic procedures (i.e., Bobo et al., 1986; Kohn & Milrose, 1993; Seidman et al., 1995) and some of the identified subscales have been comprised of only two items (i.e., Bobo et al., 1986; Kohn & Milrose, 1993).

Alternatively, researchers have derived specific subcategories of events by rating specific items on a measure (Wagner & Compas, 1990). That the ADHI upheld rigorous tests of factorial validity and invariance across two independent, demographically disparate samples is noteworthy and attests to the use of this measure with nonclinical adolescents. Moreover, correlations between the revised ADHI and the original 40- and 37-item versions ($r = .94$ and $.96$ for Samples 2 and 3, respectively) support the item reduction procedures and the use of a more parsimonious measure of hassles.

Nevertheless, as with all scientific inquiry, substantially more replication work is needed to further assess and validate the ADHI for use with diverse groups of adolescents. In particular, further research aimed at improving the reliability of the ADHI is important. Recognizing that internal reliability coefficients at or exceeding $.80$ are generally considered indicative of acceptable homogeneity of item content (Brantley & Jones, 1989), research should be aimed at further refining and evaluating the internal consistency of the subscales of the ADHI. Moreover, given that the ADHI is a state measure and that lower test-retest correlations are expected as the time interval between testing periods increases, it is relevant to also examine the test-retest reliability of the ADHI at shorter time intervals. As was acknowledged earlier, tests of convergent validity and invariance across gender also are warranted.

In the interim, the revised version of the full scale ADHI can be used with confidence in analyses aimed at investigating hypotheses specific to Study 2. The problems of convergent validity and internal consistency for the subscales of the revised version of the ADHI indicate that caution should be exercised in the current use and

interpretation of findings based on subscale scores. The increased interest in obtaining greater precision in hypothesis tests involving stress (e.g., Brewer, 1993; Hammen et al., 1989; Metalsky et al., 1993; Turner & Cole, 1994) clearly warrants the present attempt to identify and operationalize the various dimensions of stress (i.e., daily hassles) experienced by adolescents and highlights the importance of continuing to develop and refine this instrument.

STUDY 2: EXAMINING CAUSAL RELATIONS AMONG SELF-CONCEPT, DAILY HASSLES, DEPRESSIVE AND ANXIETY SYMPTOMS

The purpose of Study 2 was to examine the concomitant and prospective associations between self-concept, daily hassles, and depressive and anxiety symptoms among adolescents. Consistent with current conceptions of negative affectivity and with findings which suggest that stress is a nonspecific risk factor for a variety of symptoms and disorders, it was hypothesized that a global diathesis-stress model would be similarly tenable in the prediction of depressive and anxiety symptoms. In particular, compatible with traditional formulations of diathesis-stress models, it was predicted that individuals with low general self-concept scores would be more vulnerable to developing symptoms than individuals with high general self-concept scores under conditions of high stress. Recognizing that the self is best understood from a multidimensional perspective, additional regression analyses were aimed at discerning which specific self-concept facets were the best predictors of depressive and anxiety symptoms for adolescent boys and girls and whether these facets were also those for which gender differences have been obtained. Finally, causal models aimed at understanding the influence of self-concept in the development and maintenance of depressive symptoms were tested.

Method

Subjects and Procedure

Students from two suburban high schools in Ottawa, Canada were invited to participate in the study. Informed consent was obtained from a total of 338 students (134 males, 204 females) and their parents. Although the age of the subjects ranged from 13 to 18 years ($M = 15.65$), the majority of students were ages 14 through 18 ($n = 330$) at the onset of the study. Most of the students identified either French ($n = 148$) or English ($n = 164$) as their first language. English was the primary language of instruction at both of these high schools. Some of the subjects did not know the educational status of their mother (1.2%) or their father (2.7%) or indicated a response other than the choices provided (3.3 and 4.4% for mothers and fathers, respectively). Based on responses from students regarding the educational status of their parents, results indicated that a large proportion of parents had received a college or university education (50.30% and 58.30% of mothers and fathers, respectively).

In collaboration with school officials, students who agreed to participate were asked to complete questionnaires in the cafeteria during a specified period. The first and second waves of data were collected over a two-day period at the end of October and April, respectively (allowing for a six-month interval between testing periods). Subjects were asked to complete the questionnaires independently while the researcher remained available to answer questions and provide clarification if necessary. Ten students were unable to complete the questionnaires during the specified assessment period in April and

completed them independently within nine days of the collective administration. With the exception of these 10 students, all subjects were administered the questionnaires in the manner described above.

Of the 338 students who participated at Time 1, 265 (97 males, 168 females) participated at Time 2. This resulted in an overall attrition rate of 22%. The attrition rate may reflect the follow-up procedure, as well as the fact that students were on a semester system and therefore may have been in different classes with different teachers during the second assessment period. An aggressive follow-up procedure was precluded by ethical considerations and the time constraints of the schools involved. To protect the confidentiality of students, telephone numbers and addresses were not included on the questionnaires and could not be obtained through school officials. Rather, memos reminding participating students of the Time 2 testing session were circulated one week in advance of the testing session and participants were then called to the cafeteria immediately prior to the session. To minimize disruption to the schools, only one testing session was made available to subjects.

Biases that may have emerged due to attrition in the Time 1-Time 2 panel sample were examined by comparing those subjects who did not participate at Time 2 ($n = 73$) with those who participated at both time points ($n = 265$) on demographic characteristics and critical Time 1 variables. The results of t -tests indicated that the groups were comparable in terms of maternal education [$t(332) = -1.04, p > .05$], paternal education [$t(327) = .56, p > .05$], total BDI scores [$t(336) = .15, p > .05$], total anxiety symptom scores [$t(335) = -1.29, p > .05$], total perceptions of daily hassles scores [$t(336) = -$

1.57, $p > .05$], and general self-concept scores [$t(336) = -.09$, $p > .05$]. Significant differences were found for age and gender. Subjects who did not participate at both time points tended to be male [$\chi^2(1, N = 338) = 4.74$, $p < .05$] and to be older than those who maintained participation in the study ($M = 16.58$ vs. 15.39 years), $t(336) = -6.44$, $p < .001$. Other researchers have similarly found a higher attrition rate for adolescent males and older adolescents (e.g., Allgood-Merten et al., 1990; Garrison et al., 1990; Lewinsohn et al., 1994).

The questionnaire package included five measures relevant to this dissertation: (a) a multidimensional measure of self-concept, (b) a measure of daily hassles, (c) a measure of depressive symptoms, (d) a measure of anxiety, and (e) a demographic questionnaire pertaining to subjects' age, gender, first language, and parents' education. Subjects' names also were solicited for the purposes of matching Time 1 and Time 2 data and contacting those whose responses to the questionnaire indicated a significant level of distress. One additional measure was included in the questionnaire package but it will not be discussed in this context (see Appendix B).

Consistent with the conditions of confidentiality stipulated on the consent form, those participants whose responses to the BDI suggested a potentially serious level of distress were contacted. Such a level of distress was defined by endorsement of the third ("I would like to kill myself") or fourth ("I would kill myself if I had the chance") statements on item #9 of the BDI and/or a total score of 20 or more on the BDI. On the basis of these criteria, a total of 38 subjects (7 males, 31 females) were identified at Time 1 and 32 subjects (9 males, 23 females) were identified at Time 2. Both the adolescent

and his/her parent/guardian were sent a letter denoting that a high level of distress was indicated, with the recommendation that further assessment and/or counselling be considered. A follow-up phone call also was made to ensure receipt and understanding of the letter, as well as to provide possible referrals if necessary.⁶

Measures

Self Description Questionnaire. (SDQ II; Marsh, 1992b). The SDQ II was used to measure self-concept, conceptualized as a multidimensional construct. It is a 102-item self-report inventory designed to measure self-concept in the following areas: Academic (Math, Verbal, General School), Non-Academic (Physical Abilities, Physical Appearance, Same Gender Peer Relations, Opposite Sex Peer Relations, Parent Relations, Emotional Stability, Honesty/Trustworthiness), General Self-Concept. Although this particular version of the SDQ was originally developed for use with early to mid-adolescents attending junior high and high schools (grades 7-10), research has now firmly established its appropriateness for students enrolled in grades 7 through 12 (Byrne, 1996).

Subjects are asked to rate the degree to which each of the statements is an accurate depiction of themselves on a 6-point Likert-type scale (1 = "false"; 6 = "true").

⁶Readers may note a discrepancy between the BDI cut-off score used here and that used to assess the discriminant validity of the ADHI. As several investigators have noted, the cut-off scores used to designate moderate depression tend to vary between 16 and 20 (see Beck et al., 1988; Tennen, Hall, & Affleck, 1995 for reviews). Recognizing that other researchers often use a cut-off score of 16, the use of this more conservative cut-off score was considered appropriate in evaluating the ADHI.

Total scores are calculated for each subscale. The lowest possible raw score for the Mathematics, General Self, Honesty/Trustworthiness, Verbal, Emotional, General School, and Same Sex Peer Relations scales is 10 and the highest is 60. The lowest possible score for the Physical Appearance, Physical Abilities, Parent Relations, and Opposite Sex Peer Relations scales is 8, whereas the highest possible score is 48.

Based on the full normative sample ($N = 5,494$), Marsh obtained internal consistency reliability coefficients ranging from .83 (Emotional Stability) to .91 (Physical Appearance), with a mean α of .87 for the 11 subscales (Marsh, 1992b). Evidence of test-retest reliability was obtained through a study aimed at examining the responses of 137 high school girls before and after an intervention program designed to enhance their physical fitness (Marsh & Peart, 1988). Test-retest reliability coefficients, for a 7-week interval, ranged from .72 (Emotional Stability) to .88 (Mathematics), with an overall mean $r = .80$ for the 11 subscales.

Evidence of validity is provided by numerous factor analytic studies which consistently identify the dimensions of self-concept the SDQ II instrument was designed to measure (Marsh, Parker, & Barnes, 1985; Marsh, 1992b). Moreover, consistent with the Shavelson et al. model, correlations among the factors are modest, ranging from -.03 to .39 (median $r = .15$). Tests of invariance of the factor structure of the SDQII similarly support the conceptualization of self-concept as a multidimensional, hierarchically structured construct for both males and females (Byrne & Shavelson, 1987; Marsh, 1993). Finally, research examining the association between the SDQ II and numerous

related constructs (e.g., academic performance, parent, teacher, and peer reports) provides additional support for the construct validity of the SDQ II (Byrne, 1996).

Adolescent Daily Hassles Inventory. Daily hassles were measured with the Adolescent Daily Hassles Inventory (ADHI) previously described.

Beck Depression Inventory. (BDI; Beck et al., 1961). Depressive symptoms were measured using the BDI, a 21-item scale that consists of statements aimed at assessing cognitive, motivational, affective, and somatic components of depression. Each item consists of four statements rated from 0 to 3 in terms of level of severity and subjects are asked to endorse those statements which most accurately reflect their feelings. Total scores range from 0 to 63, with higher scores representing a more severe level of self-reported depression. Although originally developed as an interview-assisted procedure, the BDI is now most typically used as a self-report inventory (Beck, Steer, & Garbin, 1988; Gotlib & Cane, 1989). As was noted previously, the cut-off score ranges for the BDI tend to be variable. According to Shaw, Vallis, and McCabe (1985), a total BDI score of 0-9 is generally considered indicative of a nondepressed state, 10-15 reflects a mild level of depressive symptoms, 16-23 a moderate level, and 24-63 a severe level.

Research supports the psychometric adequacy of the BDI for use with nonclinical adolescents. Studies examining the internal consistency reliability of the BDI for this population have reported coefficient alpha estimates ranging from .80 to .90 for this population (Baron & LaPlante, 1984; Barrera & Garrison-Jones, 1988; Shek, 1990; Teri, 1982). Barrera and Garrison-Jones also reported evidence of convergent validity with

the Child Assessment Schedule (CAS; Hodges, Kline, Stern, Cytryn, & McKnew, 1982) for items measuring depressive symptoms ($r = .73$) and with the General Self Worth subscale of Harter's (1982) Perceived Competence Scale ($r = -.64$). Additionally, Kauth and Zettle (1990) reported correlations of .80 and .40 for the Automatic Thoughts Questionnaire (ATQ; Hollon & Kendall, 1980) and Dysfunctional Attitudes Scale (DAS; Weissman & Beck, 1978), respectively.

In support of the construct validity of the BDI and consistent with findings obtained by Tanaka and Huba (1984) in an adult sample, Byrne and Baron (1993) obtained results to suggest that the BDI is hierarchically-ordered, comprising one second-order general factor of depression, and three first-order factors labelled Negative Attitudes, Performance Difficulty, and Somatic Elements in an adolescent nonclinical sample. Tests of factorial invariance confirmed the hierarchical structure of the BDI and yielded minimal measurement-related differences among adolescent males and females (Byrne, Baron, & Campbell, 1993, 1994; Byrne, Baron, & Balev, 1996b; Byrne, Baron, Larsson, & Melin, in press). Specifically, Item 20 (hypochondriasis) loaded on the Negative Attitude factor, rather than on the Performance Difficulty factor for females only, and Items 8 (self-accusation) and 10 (crying) were found to be nonequivalent in their measurement of Negative Attitude across gender. These findings generally indicate that any gender differences in rates of depressive symptoms can be confidently attributed to differences among the groups rather than an artifact of discrepancies in the measurements or structure of the BDI (Byrne et al., 1993).

State-Trait Anxiety Inventory (STAI; Spielberger, 1983). The STAI is comprised of two separate self-report scales for measuring state and trait anxiety. For the purposes of this research, the STAI-State (STAI-S) form was used. The STAI-S scale consists of 20 statements designed to assess *state anxiety*. Each item is rated on a scale of 1 to 4. Total scores range from 20 to 80, with higher scores indicating a higher level of anxiety.

Based on a high school normative sample, internal consistency coefficients of .86 and .94 were reported for males and females, respectively. Test-retest reliability coefficients for high school students were less high. Reliability coefficients of .62 and .34 were obtained for males and females, respectively (30 days) and coefficients of .51 and .36 (males and females, respectively) were reported for a 60-day interval (Spielberger, 1983). Low stability coefficients are expected because a valid measure of state anxiety should reflect the transitory nature of anxiety states.

Evidence of the construct validity of the STAI-S scale was obtained from a study indicating that the measure discriminates between military recruits who are beginning a stressful training program and college and high school students. Further support for the validity of the STAI-S was obtained from a study showing that, compared to when they were tested in a regular class period, STAI-S scores of college students were significantly higher under examination conditions, and significantly lower after relaxation training (Spielberger, 1983). Finally, based on a review of self-report instruments designed to measure depression and anxiety, Gotlib and Cane (1989) found that the STAI-S and the BDI were among the best measures to use if a primary objective is to

discriminate between depression and anxiety.

Statistical Analyses

As was outlined previously, only those subjects who participated in the second study at both time points ($N=265$) were included in analyses aimed at understanding the temporal and concomitant association between self-concept, daily hassles, and depressive and anxiety symptoms. Analyses were conducted and will be presented in three major stages. First, global analyses examined the role of general self-concept, daily hassles, and the interaction between general self and daily hassles (Time 1) in the prediction of depressive and anxiety symptoms (Time 2). Second, recognizing the importance of considering self-concept as a multidimensional construct, multiple regression analyses were conducted to ascertain the role of specific self-concept facets (Time 1 Math, Verbal, School, Physical Ability, Physical Appearance, Same Sex Peer Relations, Opposite Sex Peer Relations, Parent Relations, Honesty/Trustworthiness) in the prediction of depressive and anxiety symptoms (Time 2). Finally, structural equation modeling procedures were used to test two alternating models of the influence of self-concept in the development and maintenance of depressive symptoms for the combined samples of boys and girls who participated at both time points. Sample size constraints precluded testing these models separately for boys and girls. Model 1 hypothesized both a direct and an indirect association between general self-concept and anxiety symptoms, such that daily hassles mediates the influence of general self-concept on anxiety symptoms. It was further posited that anxiety symptoms temporally precede the

development of depressive symptoms. Model 2 hypothesized that depressive symptoms generate daily hassles, both directly and indirectly through their influence on general self-concept.

Results

Stage 1: Predicting Depressive and Anxiety Symptoms - Global Analyses

The aim of these analyses was to test the diathesis-stress model as it pertains to global measures of self-concept and daily hassles. In view of the overlap among self-concept, depressive and anxiety symptoms, as well as findings which suggest that daily hassles are a nonspecific risk factor for a variety of symptoms and disorders, it was hypothesized that the diathesis-stress model would be similarly applicable in predicting both depressive and anxiety symptoms. More specifically, a moderator effect was expected, with results indicating that individuals with low general self-concept scores would report higher levels of symptoms as their self-reported levels of daily hassles increased. Hierarchical multiple regression analyses were conducted separately for boys and girls, first using Time 2 BDI scores as the dependent variable and next using anxiety scores at Time 2 as the criterion. General self-concept, full scale daily hassles scores, and the interaction between general self and daily hassles were used to predict Time 2 depressive and anxiety symptoms while statistically controlling for both depressive and anxiety symptoms at Time 1. Independent variables were centered and the interaction term was created by computing their product (Aiken & West, 1991). Prior to

conducting analyses, relevant variables were examined through various SPSS/Windows programs for accuracy of data entry, missing values, and fit between their distribution and the assumptions of multiple regression.

A total of 97 boys and 168 girls participated at both time points. Means, standard deviations, and intercorrelations among relevant variables are presented in Table 8. The mean BDI score (Time 2) was 8.75 (SD = 7.99) for the total sample, 6.54 (SD = 6.77) for males, and 10.04 (SD = 8.37) for females. The difference in total scores for males and females was statistically significant ($p < .001$). The mean STAI score (Time 2) was 36.21 (SD = 12.17) for the total sample, 32.64 (SD = 10.09) for males, and 38.28 (SD = 12.81) for females. The difference in total scores for males and females was statistically significant ($p < .001$). Moreover, consistent with previous research, the correlation between anxiety and depression scores was highly significant ($p < .001$) for males ($r = .62$ and $.56$ for Time 1 and 2, respectively) and females ($r = .65$ and $.68$ for Time 1 and 2, respectively) at both time points, substantiating the claim to statistically control for the overlap in symptoms of anxiety and depression.

Preliminary analyses revealed some missing data for females (i.e., one case on three of the variables) and no missing data on any of the variables of interest for males. Skewness and kurtosis values were in the normal range for the general self-concept subscale (SK = $-.89$; KU = $.20$), the full scale ADHI (SK = $-.03$; KU = $-.61$), and the anxiety scale (SK = $.35$; KU = $-.78$) for boys' Time 1 data and for their anxiety scores at Time 2 (SK = $.54$; KU = $-.62$). However, Time 1 BDI values (SK = 1.22 ; KU = 1.95) and Time 2 values (SK = 1.78 ; KU = 4.15) indicated nonnormal distributions. Similarly,

all values were in the normal range for girls (i.e., general self-concept subscale: $\underline{SK} = -1.08$, $\underline{KU} = .96$; full scale ADHI: $\underline{SK} = -.04$, $\underline{KU} = -.13$; anxiety Time 1: $\underline{SK} = .44$, $\underline{KU} = -.33$; anxiety Time 2: $\underline{SK} = .73$, $\underline{KU} = .04$) except the BDI at both Time 1 ($\underline{SK} = 1.40$; $\underline{KU} = 2.17$) and Time 2 ($\underline{SK} = 1.53$; $\underline{KU} = 2.99$). To normalize the distribution of the Time 2 BDI, a square root transformation was applied for both boys and girls and subsequent multiple regression analyses utilized this transformed variable.

Predicting depressive symptoms (Boys). Of the 97 cases, 3 were identified as multivariate outliers and 2 were identified as univariate outliers and deleted from further analyses. This left a total of 92 cases and an independent variable/case ratio of 1:18.4, well above the minimum requirements for regression (Tabachnik & Fidell, 1989). In an effort to control for the overlap between anxiety and depressive symptoms, as well as depressive symptoms at Time 1, Time 1 STAI scores were entered first, followed by Time 1 BDI scores. Next, general self-concept scores (Time 1) were entered, followed by full scale ADHI scores (Time 1). Finally, the interaction between general self and daily hassles scores were entered into the equation. As shown in Table 9, only anxiety and depressive symptom scores were significant predictors of Time 2 depressive symptom scores.

Predicting depressive symptoms (Girls). Of the 168 cases, 1 case was deleted from further analyses due to missing data; 7 were identified as multivariate outliers and 4 were identified as univariate outliers and deleted from subsequent analyses. The final sample included a total of 156 cases, resulting in an adequate independent variable/case ratio of 1:31.2. The order of entry of variables was consistent with that outlined above

Table 8

Means, Standard Deviations, and Intercorrelations Among Variables for Boys and Girls

Variable	<u>M</u>	<u>SD</u>	1	2	3	4	5	6
Boys (<u>n</u> = 97)								
1. T1 BDI	6.55	5.52	--	.36	.62	.30	-.35	.34
2. T2 BDI	6.54	6.77		--	.13	.56	-.08	.09
3. T1 STAI	33.32	8.99			--	.38	-.41	.31
4. T2 STAI	32.64	10.09				--	-.10	.26
5. T1 GSC	51.18	6.75					--	-.19
6. T1 ADHI	64.51	15.88						--
Girls (<u>n</u> = 168)								
1. T1 BDI	11.80	8.78	--	.61	.65	.44	-.62	.41
2. T2 BDI	10.04	8.37		--	.42	.68	-.42	.35
3. T1 STAI	40.92	12.27			--	.51	-.51	.39
4. T2 STAI	38.28	12.81				--	-.28	.42
5. T1 GSC	46.89	9.49					--	-.40
6. T1 ADHI	69.74	18.39						--

Note. T1 = Time 1; T2 = Time 2; BDI = Beck Depression Inventory; STAI = State-Trait Anxiety Inventory; GSC = General Self-concept; ADHI = Adolescent Daily Hassles Inventory. For boys, correlations $\geq .20$ are significant at $p < .05$. For girls, all correlations are significant at $p < .001$.

Table 9

Hierarchical Multiple Regression Results of Time 1 Variables Predicting Depressive and Anxiety Symptom Scores at Time 2 (Global Analyses)

Variable	Boys			Girls		
	R^2_{change}	R^2	F_{change}	R^2_{change}	R^2	F_{change}
Criterion Variable = Time 2 BDI^a						
STAI ^b _{T1}	.08	.08	7.35**	.15	.15	26.64***
BDI ^a _{T1}	.22	.30	27.98***	.37	.51	114.34***
GSC ^c	.003	.30	.32	.01	.52	3.13
ADHI ^d	.001	.30	.10	.01	.53	3.55
GSC * ADHI	.003	.30	.34	.003	.54	.83
Criterion Variable = Time 2 STAI^b						
BDI ^a _{T1}	.11	.11	11.17***	.28	.28	61.78***
STAI ^b _{T1}	.07	.18	8.10**	.07	.35	15.88***
GSC ^c	.001	.18	.03	.001	.35	.003
ADHI ^d	.03	.21	2.81	.03	.38	7.28**
GSC * ADHI	.004	.21	.45	.02	.40	4.90*

Note. ^aBeck Depression Inventory scores. ^bState-Trait Anxiety Inventory scores.

^cGeneral Self-concept subscale scores. ^dAdolescent Daily Hassles Inventory scores.

* $p < .05$. ** $p < .01$. *** $p < .001$.

for the male sample and, as Table 9 indicates, only anxiety and depressive symptom scores contributed significantly to the prediction of depressive symptoms at Time 2.

Predicting anxiety symptoms (Boys). Three multivariate outliers and 1 univariate outlier were identified and deleted from subsequent analyses, leaving a total of 93 cases. To control for the overlap between depressive and anxiety symptoms, and for STAI scores at Time 1, Time 1 BDI scores were entered first, followed by Time 1 STAI scores. The order of entry of subsequent variables were as follows: general self-concept subscales scores, full scale ADHI scores, and the interaction between general self and hassles scores. As Table 9 indicates, only anxiety and depressive symptom scores were significant predictors of anxiety symptom scores at Time 2.

Predicting anxiety symptoms (Girls). Of the 168 cases, 1 was deleted due to missing data, 7 were identified as multivariate outliers and 1 was identified as a univariate outlier and deleted from subsequent analyses. The order of entry of variables in the hierarchical multiple regression procedure was consistent with that outlined above for boys. As indicated in Table 9, daily hassles scores, as well as the interaction between general self-concept and daily hassles, made a significant contribution to the prediction of anxiety symptoms at Time 2. To explore the nature of this interaction, three groups of girls were formed according to proposed guidelines for probing significant interactions (Aiken & West, 1991; Cohen & Cohen, 1983). The groups represented girls who obtained high general self-concept (GSC) scores (i.e., one standard deviation above the mean), moderate (i.e., mean) general self-concept scores, and relatively low general self-concept scores (i.e., one standard deviation below the mean). As shown in Figure 4,

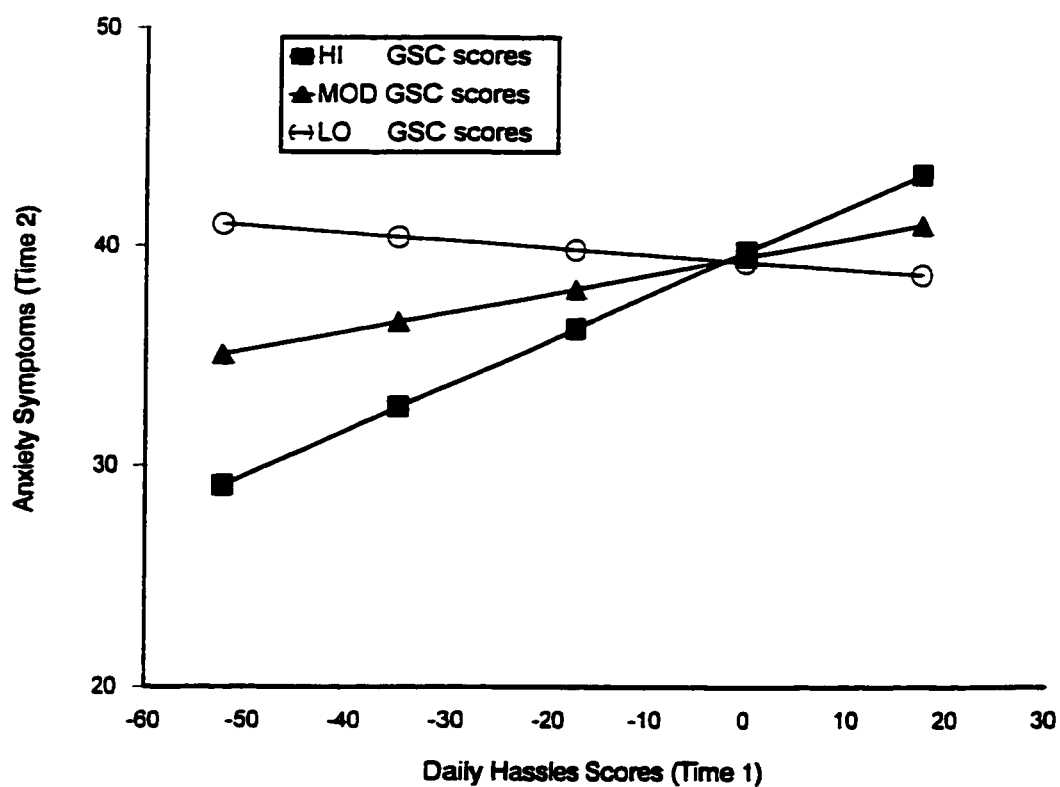


Figure 4. Anxiety symptoms (Time 2) as a function of general self-concept (Time 1) and daily hassles (Time 1) for girls. (Note. GSC = general self-concept).

results of the post hoc probing indicated that for girls who obtained high GSC scores, anxiety symptom scores tended to vary as a function of daily hassles, such that higher anxiety symptom scores were associated with higher levels of daily hassles. Similar results were obtained for girls who obtained moderate GSC scores, with findings suggesting that higher levels of anxiety symptoms were associated with higher levels of daily hassles. Finally, results suggested that girls who obtained low GSC scores experience moderate levels of anxiety symptoms at very low levels of daily hassles (i.e., three standard deviations below the obtained mean for girls). Results additionally suggest that this moderate level of anxiety is maintained; there is negligible change in anxiety symptom scores as a function of daily hassles. Consistent with the recommendations put forth by Aiken and West (1991), the slope of each of the regression lines depicted in Figure 4 was tested statistically. Findings indicated that the slope was significant only for the group obtaining high GSC scores, with $t(159) = 3.62$, $p < .001$, $t(159) = 1.61$, $p > .05$, and $t(159) = -.23$, $p > .05$ for groups obtaining high GSC, moderate GSC, and low GSC scores, respectively. Contrary to expectations, these results suggest that anxiety symptom scores significantly fluctuate as a function of daily hassles scores only for those girls with high GSC scores. For those girls who obtained low and moderate GSC scores, anxiety symptom scores are not significantly influenced by their experience of daily hassles.

In an effort to more fully explore the unique contribution of self-concept to the development of depressive and anxiety symptoms, and consistent with the assertion that self-concept can best be understood from a multidimensional perspective, additional

analyses were aimed at examining the relative contribution of specific self-concept scores in predicting depressive and anxiety symptom scores at Time 2.

Stage 2: The Influence of Specific Self-Concept Facets in the Prediction of Depressive and Anxiety Symptoms

To investigate the influence of specific self-concept facets in the prediction of depressive and anxiety symptoms, additional multiple regression analyses were conducted. Again, to adjust for nonnormality of the BDI, transformed BDI scores were used. Moreover, prior to conducting hierarchical multiple regression analyses, relevant variables were examined through various SPSS/Windows programs for accuracy of data entry, missing values, and fit between their distribution and the assumptions of multiple regression.

All of the self-concept facet scores, with the exception of emotional stability and general self-concept, were considered in regression analyses. Consistent with the theoretical assumption that a higher-order general perception of self subsumes more specific facets, the inclusion of general self-concept was considered redundant. Similarly, the use of the emotional stability facet was considered inappropriate given the redundancy in item content on this particular subscale (e.g., “I am usually relaxed”; “I worry about a lot of things”) and the measure of anxiety (e.g., “I am relaxed”; “I am worried”). In support of Marsh’s (1986) internal/external frame of reference model, the correlations between Time 1 math and verbal self-concept scores were .07, $p > .05$ and .06, $p > .05$ for boys and girls, respectively. As outlined previously, according to Marsh,

specific cognitive processes (i.e., external/social and internal comparisons) underly the near-zero correlation between math and verbal self-concept. In view of Marsh's theory and the implicit assumption that the near-zero correlation should not be accepted at face value, the separation of verbal and math facets was considered to be a conceptually neater analytic approach than considering the two facets together. Means and standard deviations for each of the specific self-concept variables (Time 1), including the general self and emotional stability facets, as well as a comparison of mean scores for boys and girls, are presented in Table 10. A summary of correlations among variables used in the regression analyses is provided in Table 11.

Prior to conducting hierarchical multiple regression analyses, relevant variables were examined through various SPSS/Windows programs for accuracy of data entry, missing values, and fit between their distribution and the assumptions of multiple regression. Preliminary analyses revealed no additional missing data for females (other than the case identified above) or males. In general, the data for the nine self-concept subscales (i.e., physical appearance, physical ability, math, verbal, school, same sex peer relations, opposite sex peer relations, parent relations, honesty) of interest were normally distributed, with skewness values ranging from -1.85 to -.54 (mean SK = -.90) for boys and -1.20 to -.47 (mean SK = -.70) for girls. Kurtosis values ranged from -1.13 to 4.10 (mean KU = .66) for boys and -1.08 to 1.24 (mean KU = .11) for girls. Although the kurtosis value was extreme for one subscale (i.e., physical ability) for boys, data transformations were not performed in the interest of subscale comparison and

Table 10

Means and Standard Deviations of Self-concept Variables and Mean Comparisons

Self-concept facet	Boys		Girls		t-value ^b
	Mean	SD ^a	Mean	SD ^a	
Math	41.19	13.22	35.24	14.65	3.29***
Verbal	41.38	10.42	43.40	10.36	-1.52
School	45.92	9.02	44.62	10.83	1.00
Physical Appearance	37.16	8.05	30.89	8.45	5.91***
Physical Ability	40.03	7.41	32.53	9.27	6.80***
Same Sex Peer	51.57	6.72	50.78	8.07	.81
Opposite Sex Peer	39.12	7.14	35.66	8.06	3.51***
Parent Relations	37.54	8.02	35.46	9.62	1.80
Honesty	42.60	9.01	45.49	7.61	-2.78
Emotional Stability	42.16	9.22	33.74	10.68	6.49***
General Self-concept	51.18	6.75	46.98	9.44	3.84***

Note. ^aStandard Deviation. ^b With a Bonferonni correction, only values with $p < .005$ are considered significant.

*** $p < .001$.

Table 11

Intercorrelations Among Variables for Boys and Girls

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
Boys (<i>n</i> = 97)													
1. T1 BDI	--	.36	.62	.30	-.20	-.16	-.39	-.40	-.21	-.32	-.37	-.28	-.15
2. T2 BDI		--	.13	.56	-.14	-.10	-.18	-.28	-.22	-.25	-.33	-.26	-.19
3. T1 STAI			--	.38	-.01	-.17	-.21	-.32	-.14	-.32	-.30	-.31	-.16
4. T2 STAI				--	-.23	-.01	-.06	-.24	-.15	-.21	-.22	-.18	-.15
5. Math					--	.07	.49	-.03	.23	.07	.09	-.01	.03
6. Verbal						--	.57	.09	.12	.14	.13	.35	.24
7. School							--	.11	.28	.21	.20	.35	.32
8. Physical Appearance								--	.52	.56	.79	.42	-.07
9. Physical Ability									--	.39	.51	.39	.20
10. Same Sex Peer										--	.70	.34	.01
11. Opposite Sex Peer											--	.33	-.05
12. Parent Relations												--	.39
13. Honesty													--
Girls (<i>n</i> = 168)													
1. T1 BDI	--	.66	.69	.48	-.12	-.13	-.40	-.39	-.18	-.29	-.06	-.49	-.15
2. T2 BDI		--	.41	.68	-.18	-.18	-.28	-.37	-.19	-.25	-.02	-.33	-.13
3. T1 STAI			--	.50	-.13	-.15	-.38	-.31	-.21	-.29	-.17	-.37	-.13
4. T2 STAI				--	-.21	-.20	-.22	-.35	-.16	-.21	-.12	-.21	-.10
5. Math					--	.06	.53	.21	-.01	.15	.01	.09	.10
6. Verbal						--	.56	.23	-.05	.24	.11	.24	.22
7. School							--	.42	.03	.41	.21	.40	.29
8. Physical Appearance								--	.14	.35	.50	.24	.11
9. Physical Ability									--	.20	.23	.03	-.01
10. Same Sex Peer										--	.45	.32	.21
11. Opposite Sex Peer											--	.11	-.02
12. Parent Relations												--	.45
13. Honesty													--

Note. T1 = Time 1. T2 = Time 2. All self-concept variables were measured at Time 1. BDI = Beck Depression Inventory. STAI = State-Trait Anxiety Inventory. For boys, correlations $\geq .20$ are significant at $p < .05$. For girls, correlations $\geq .15$ are significant at $p < .05$.

interpretability.

Predicting depressive symptoms (Boys). Of the 97 cases, 2 were identified as multivariate outliers and deleted from further analyses. This left a total of 95 cases and an independent variable/case ratio of 1:15.83, well above the minimal requirements for regression. To control for the overlap between anxiety and depressive symptoms, as well as depressive symptoms at Time 1, Time 1 STAI scores were entered first, followed by Time 1 BDI scores. Self-concept variables (Time 1) were then entered as a set (i.e., Math, Verbal, School, Physical Appearance, Physical Ability, Opposite Sex Peer Relations, Same Sex Peer Relations, Parent Relations, Honesty). In an attempt to fully explore the potential influence of math and verbal facets in predicting symptoms and to eliminate the possibility of the internal/external model confounding the results, separate regression analyses were conducted. Thus, controlling for anxiety and depressive symptom scores at Time 1, one regression equation included all of the self-concept variables outlined above with the exception of math, whereas the second regression analysis included all of the variables with the exception of verbal self-concept scores. As shown in Table 12, only depressive and anxiety symptom scores at Time 1 were significant predictors of depressive symptom scores at Time 2.

Predicting depressive symptoms (Girls). Five multivariate outliers, 3 univariate outliers, and 1 case with excessive missing data were identified and deleted from subsequent analyses, leaving a total of 159 subjects and an independent variable/case ratio of 1:26.5. Consistent with the analytic procedure used for boys, after entering anxiety and depressive symptom scores at Time 1, self-concept facet scores were entered

as a set. Moreover, in consideration of Marsh's internal/external frame of reference model, two separate regression analyses were conducted to accommodate the separation of math and verbal self-concepts. As Table 12 indicates, when math self-concept was included in the equation, none of the self-concept variables contributed to the prediction of depressive symptoms over and above Time 1 symptom scores. In contrast, when verbal self-concept was included, the set of self-concept variables accounted for an additional 5% of the variance, with t-values revealing that physical appearance ($p < .05$) and verbal self-concept scores ($p < .05$) made significant contributions to the prediction of depressive symptom scores at Time 2.

Predicting anxiety symptoms (Boys). Of the 97 cases, 2 were identified as univariate outliers and 5 as multivariate outliers and deleted from further analyses. To control for anxiety and depressive symptom scores at Time 1, BDI scores were entered first, followed by STAI scores. Next, the self-concept variables were entered into the equation as a set (i.e., Math, Verbal, School, Physical Appearance, Physical Ability, Opposite Sex Peer Relations, Same Sex Peer Relations, Parent Relations, Honesty). In consideration of Marsh's internal/external frame of reference model, one regression equation included all of the self-concept variables outlined above with the exception of math, whereas the second regression analysis included all of the variables with the exception of verbal self-concept scores.

Time 1 depressive symptom scores originally made a significant contribution to

Table 12

Hierarchical Multiple Regression Results of Time 1 Variables Predicting Depressive and Anxiety Symptom Scores at Time 2 (Specific Analyses)

Variable	Boys				Girls			
	R^2_{change}	R^2	F_{change}	Self-concept variables with t-values $\leq .05$	R^2_{change}	R^2	F_{change}	Self-concept variables with t-values $\leq .05$
Criterion Variable = Time 2 BDI^a								
STAI ^b _{T1}	.05	.05	4.91*		.12	.12	21.74***	
BDI ^a _{T1}	.21	.26	26.60***		.36	.48	109.32***	
Self-Concept Variables ^c	.05	.31	.76	not applicable ^e	.03	.51	1.27	not applicable ^e
STAI ^b _{T1}	.05	.05	4.91*		.12	.12	21.74***	
BDI ^a _{T1}	.21	.26	26.60***		.36	.48	109.32***	
Self-Concept Variables ^d	.05	.31	.76	not applicable ^e	.05	.53	2.00*	• Physical Appearance* • Verbal*
Criterion Variable = Time 2 STAI^b								
BDI ^a _{T1}	.14	.14	14.41***		.24	.24	51.74***	
STAI ^b _{T1}	.10	.24	11.55***		.06	.30	13.65***	
Self-Concept Variables ^c	.15	.39	2.50*	• Math*** • School** • Physical Ability*	.04	.35	1.25	not applicable ^e
BDI ^a _{T1}	.14	.14	14.41***		.24	.24	51.74***	
STAI ^b _{T1}	.10	.24	11.55***		.06	.30	13.65***	
Self-Concept Variables ^d	.05	.29	.75	not applicable ^e	.07	.37	2.08*	• Verbal** • Physical Appearance*

Note. ^aBeck Depression Inventory scores (transformed). ^bState-Trait Anxiety Inventory scores. ^cSelf-concept variables included: Physical Appearance, Same Sex Peer Relations, Opposite Sex Peer Relations, Parent Relations, Physical Ability, Math, School, Honesty. ^dSelf-concept variables included: Physical Appearance, Same Sex Peer Relations, Opposite Sex Peer Relations, Parent Relations, Physical Ability, Verbal, School, Honesty. ^eT-values are only interpreted for those analyses in which ΔR^2 is significant.

* $p < .05$. ** $p < .01$. *** $p < .001$.

the prediction of anxiety symptom scores at Time 2; however, once anxiety symptom scores (Time 1) were entered into the equation, t-values indicated that depressive symptom scores ($p > .05$) no longer made a significant contribution. As Table 12 indicates, when the set of self-concept variables included math but not verbal scores, an additional 15% of the variance was accounted for; t-values revealed that math ($p < .001$), school ($p < .01$), and physical ability ($p < .05$) self-concept facet scores made significant contributions to the prediction of Time 2 anxiety symptom scores. In contrast, the set of self-concept variables that included verbal but not math scores did not significantly contribute to the prediction of Time 2 anxiety scores over and above anxiety and depressive symptom scores at Time 1.

Predicting anxiety symptoms (Girls). Of the 168 cases, 1 was deleted due to missing data and 5 were deleted because they were identified as outliers (4 multivariate outliers, 1 univariate outlier). Both BDI and STAI scores at Time 1 made significant contributions to the prediction of STAI scores at Time 2. Consistent with the procedure outlined above, two separate regression analyses were conducted to allow for the separation of verbal and math self-concept scores. When math but not verbal scores were included in the equation, the set of self-concept variables did not account for any additional variance over and above symptoms at Time 1. When verbal self-concept scores were included in the absence of math scores, the set of self-concept variables accounted for an additional 7% of the variance, with t-values revealing that verbal ($p < .01$) and physical appearance ($p < .05$) self-concept scores made significant contributions

to the prediction of anxiety symptom scores at Time 2.⁷

Stage 3: Tests of Causal Models aimed at Examining the Influence of Self-concept in the Development and Maintenance of Depressive Symptoms

Model 1. A Causal Model of the Influence of Self-concept on Daily Hassles, and Depressive and Anxiety Symptoms. Structural equation modeling was used to test a model for the combined samples of boys and girls who participated at both time points (except for one female case who was deleted due to missing data; $N = 264$). The hypothesized model (Model 1) is shown in Figure 5. Consistent with the earlier description of the schematic representation of CFA models, unmeasured variables are represented by circles or ellipses and measured variables are shown in boxes. The full

⁷For the sake of completeness, regression analyses were repeated wherein math and verbal self-concept scores were included in the same equation. Results for boys were consistent with those presented in Table 12. The set of self-concept variables did not contribute to the prediction of depressive symptoms over and above symptoms at Time 1. In contrast, self-concept variables accounted for an additional 16% of the variance in anxiety symptoms, with t-values indicating that math ($p < .001$), school ($p < .01$), and physical ability ($p < .05$) self-concept made significant contributions. Similarly, results pertaining to the prediction of depressive symptoms are consistent with Table 12 for girls, with findings revealing that self-concept variables accounted for an additional 5% of the variance and only verbal ($p < .01$) and physical appearance ($p < .05$) scores made a significant contribution. In contrast, results pertaining to the prediction of anxiety symptoms reveal differences. The set of self-concept variables accounted for an additional 9% of the variance in Time 2 anxiety symptoms for girls; t-values indicated that verbal ($p < .001$), school ($p < .01$), math ($p < .05$), and physical appearance ($p < .05$) facets made significant contributions. Considered collectively, the overall results are consistent in demonstrating that math self-concept is particularly relevant to the prediction of anxiety symptoms for boys and that verbal self-concept is particularly relevant to the prediction of depressive and anxiety symptoms for girls.

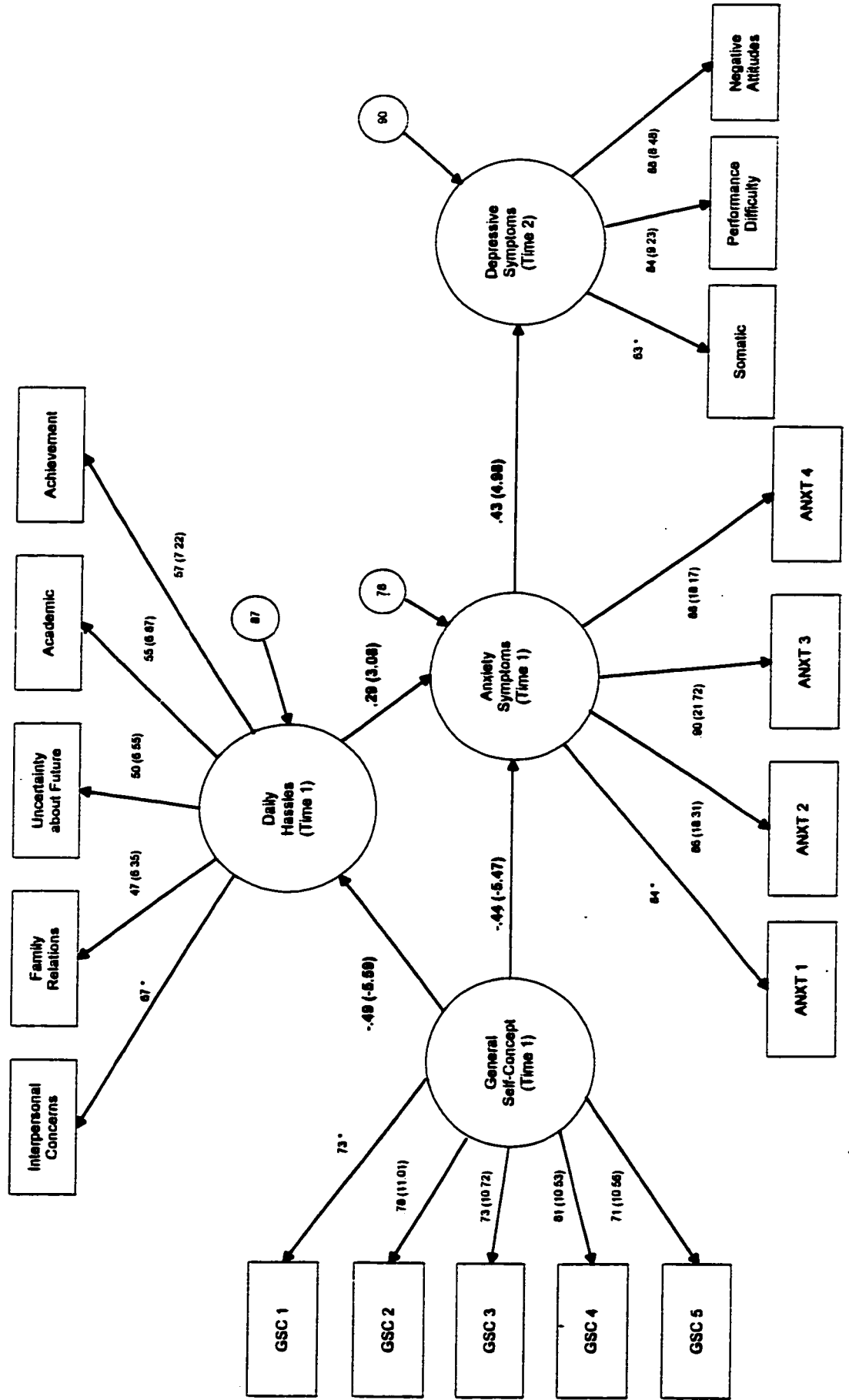


Figure 5. Causal relations among general self-concept, daily hassles, anxiety and depressive symptoms

latent variable models, depicted in Figures 5 and 6, can be decomposed into two models: a measurement model and a structural model. The measurement model focuses on how the observed variables are linked to their underlying factors. In other terms, the measurement model specifies the manner in which each measure is hypothesized to load onto a particular factor or latent variable. Thus, the CFA model, within the context of structural equation modeling, is considered to represent the measurement model. The structural model defines the relations among latent variables, specifying which latent variable(s) directly or indirectly influences changes in the values of other latent variables in the model. As depicted in Figure 5, latent variables (e.g., self-concept, daily hassles) are linked by one-way arrows which depict the hypothesized causal structure of these variables in the model. The observed or measured variables, shown in boxes, function as indicators of their respective underlying latent variables. Associated with each latent variable is a disturbance term; disturbance terms represent error in the prediction of the unobserved factor.

Based on theory and empirical research reviewed in the introduction of this dissertation, Model 1 specified a priori that daily hassles mediate the influence of general self-concept on symptoms of anxiety at Time 1. In particular, consistent with the definition of the *self as agent*, it was predicted that perceptions of daily hassles are influenced by one's self-view and that daily hassles then contribute to symptoms of anxiety. The model additionally hypothesized a direct causal path between general self-concept and anxiety symptoms at Time 1. Finally, congruent with findings which suggest that anxiety precedes the development of depressive symptoms (Kovacs et al.,

1989; Reinherz et al., 1989), a causal path between anxiety symptoms at Time 1 and depressive symptoms at Time 2 was posited.

Multiple indicators of each of the latent constructs were formulated through the judicious and empirically-derived combination of specific items. In particular, five indicators were formed for the general self-concept construct and four indicators were formed for the anxiety symptom latent construct. Each indicator was comprised of a subset of the items on the general self-concept subscale and STAI, respectively. Alternate general self-concept subscale items were combined into pairs to form five indicators. Four indicators of anxiety symptoms were formed by combining odd- and even-numbered items. Five indicators, each representing one of the subscales of the ADHI, were used to measure daily hassles. Based on previous factor analyses of the BDI with adolescent samples (i.e., Byrne & Baron, 1993; Byrne et al., 1993), three indicators of depressive symptoms (i.e., Negative Attitudes, Performance Difficulty, and Somatic Elements) were formed.

The EQS/Windows program (EQS; Bentler & Wu, 1995) was used for structural equation modeling procedures, using maximum likelihood (ML) estimation. Evaluation of model fit was based on the Satorra-Bentler scaled statistic ($S-B\chi^2$; Satorra & Bentler, 1988a, 1988b) and the Comparative Fit Index (CFI; Bentler, 1990). The $S-B\chi^2$ statistic incorporates a scaling correction for the χ^2 statistic and is used when distributional assumptions are violated. Given the known kurtotic nature of the BDI for nonclinical adolescent samples (Byrne & Baron, 1994; Byrne et al., 1993), the $S-B\chi^2$ statistic represents a more cogent index of model fit than the uncorrected χ^2 test statistic. The

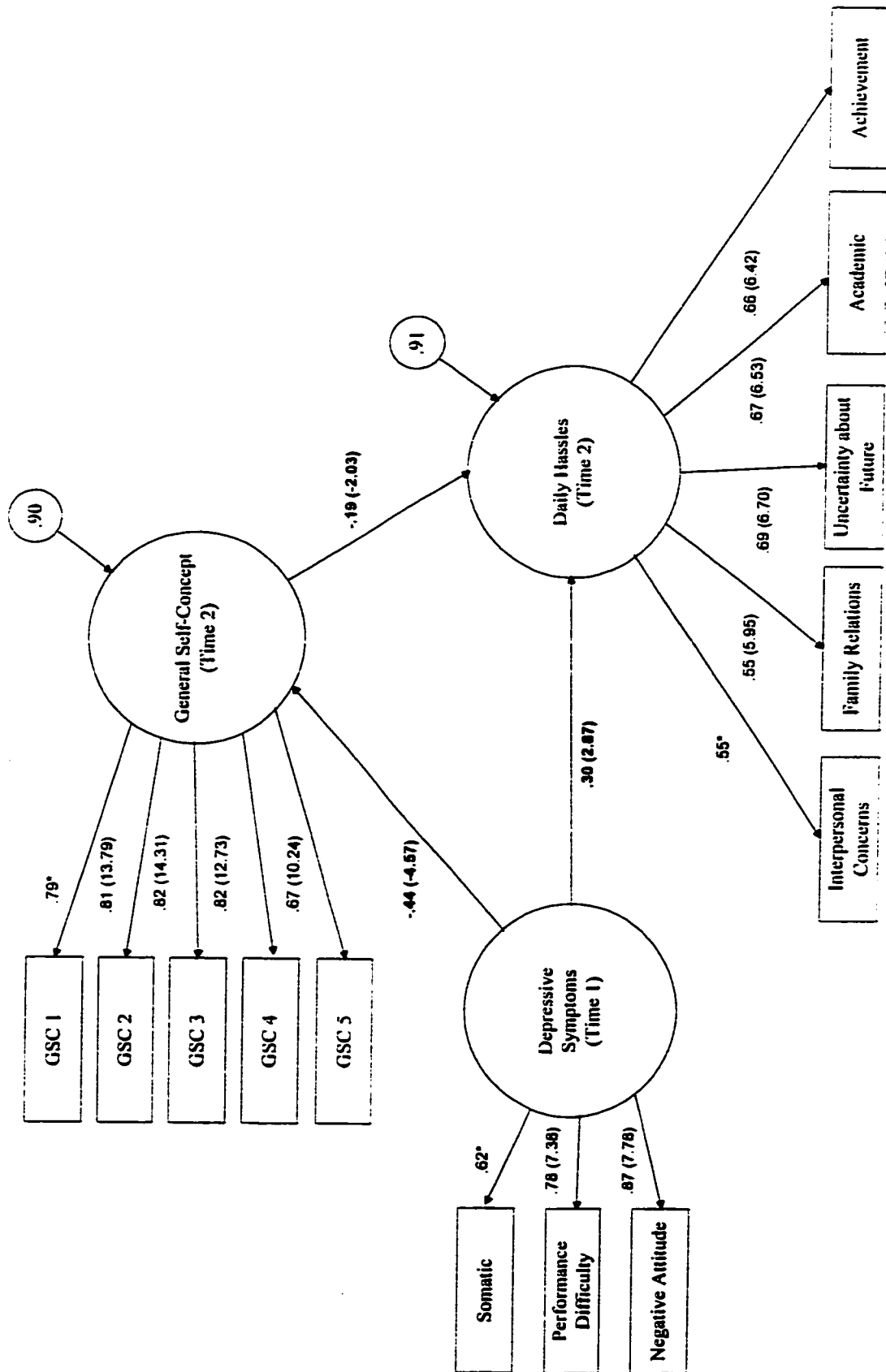
computation of the $S-B\chi^2$ takes into account the model, the estimation method, and the sample kurtosis values (Hu, Bentler, & Kano, 1992). A corrected CFI value (*CFI) is also computed from the $S-B\chi^2$. For the sake of completeness, the χ^2 test statistic will be reported along with the $S-B\chi^2$ statistic, and the *CFI.

Before evaluating the structural model, the measurement model was tested. One multivariate outlier was identified and deleted from further analyses. As anticipated, an examination of the univariate test statistics revealed that all of the indicators of the BDI were severely kurtotic, thereby providing justification for the use of the $S-B\chi^2$ test statistic. The fit indexes for the proposed measurement model were excellent, $\chi^2(113, N = 263) = 155.45, p < .01$, $S-B\chi^2(113, N = 263) = 143.51, p = .03$, *CFI = .98. The test of the structural model similarly indicated an excellent fit to the data, $\chi^2(115, N = 263) = 170.61, p < .001$, $S-B\chi^2(86, N = 263) = 157.07, p < .01$, *CFI = .97.

Model 2: Depressive Symptoms and the Generation of Hassles - Direct and Indirect Effects. Structural equation modeling was used to test a second model for the combined samples of boys and girls who participated at both time points (except for one female case who was deleted due to excessive missing data; $N = 264$). The specified model hypothesized that depressive symptoms at Time 1 generate daily hassles at Time 2, both directly and indirectly through their influence on general self-concept. The postulated model is shown in Figure 6.

Again, general self-concept was measured by five indicators, each comprised of a composite of items derived from the general self-concept subscale (Time 2). Daily hassles were measured by the five subscales comprising the ADHI (Time 2) and

depressive symptoms were measured with three indicators labelled Negative Attitudes, Performance Difficulty, and Somatic Elements (Time 1) derived from previous factor analyses of the BDI. The initial test of the measurement model yielded adequate fit values, $\chi^2(62, N = 263) = 144.41, p < .001$, $S-B\chi^2(62, N = 263) = 124.21, p < .001$, $*CFI = .94$. Results pertaining to the structural model also supported the hypothesized model, $\chi^2(62, N = 263) = 144.41, p < .001$, $S-B\chi^2(62, N = 263) = 124.21, p < .001$, $*CFI = .94$.



Summary and Discussion of Findings

In broad terms, the aim of Study 2 was to examine the association between self-concept, daily hassles, and depressive and anxiety symptoms. Analyses aimed at testing specific hypotheses were conducted in three major stages. The first stage of analyses considered global measures of self-concept and daily hassles and tested traditional formulations of the diathesis-stress model. In particular, consistent with traditional abstractions of diathesis-stress models and with conceptions of the self as object, it was predicted that individuals with low self-esteem would be at greater risk for the development of symptoms under conditions of high stress than individuals with high self-esteem. Given the centrality of self-esteem in the phenomenology of depressive and anxiety phenomena, it also was hypothesized that the global diathesis-stress model would be similarly tenable in predicting depressive and anxiety symptoms. Results showed that the model was similarly *untenable* in predicting depressive and anxiety symptoms for boys. Findings were consistent, regardless of whether the dependent variable was depressive or anxiety symptoms. Results additionally indicated that neither general self-concept nor daily hassles made independent unique contributions to the prediction of depressive and anxiety symptoms with initial symptom levels held constant.

Similarly, general self-concept and daily hassles scores, either alone or in combination, did not significantly contribute to the prediction of depressive symptoms for girls. In contrast, although general self-concept did not contribute to the prediction

of anxiety symptoms, daily hassles scores made a unique, albeit small, contribution to the prediction of anxiety over and above initial symptom levels and general self-concept scores. Moreover, the interaction between general self-concept and daily hassles (i.e., a moderator effect) uniquely contributed to the prediction of anxiety symptoms once initial symptom levels and the independent contributions of general self-concept and daily hassles were accounted for. However, results were incompatible with the stress-diathesis model, which predicts that girls with low self-concept scores (cf. individuals with high scores) will be especially vulnerable to the development of symptoms under conditions of stress.

Results of the post hoc probing of the interaction revealed a tendency for female subjects who obtained high general self-concept scores at Time 1 to report changes in anxiety symptom scores six months later as a function of changes in their Time 1 daily hassles scores. In contrast, for those individuals who obtained moderate or low general self-concept scores, anxiety symptom scores did not significantly fluctuate as a function of their experience of daily hassles. Rather, results indicated that the combination of low general self-concept scores and low levels of daily hassles at Time 1 contributed to moderate levels of anxiety at Time 2. Moreover, such levels of anxiety at Time 2 were not significantly influenced by changes in their Time 1 daily hassles scores.

The present findings connote that conditions of high stress are not necessary for the development of anxiety symptoms among girls with low general self-concept scores (or low self-esteem). Rather, such individuals appear to have a low threshold for stress, developing moderate symptoms of anxiety under conditions of low stress (i.e., low daily

hassles scores). The current results additionally suggest that their female counterparts who obtained high general self-concept scores may exhibit more adaptive responses to stress, developing moderate symptoms of anxiety at moderate levels of daily stress. More specifically, results indicated that among girls with high self-esteem, levels of anxiety symptoms significantly increased as a function of their experience of daily hassles. In contrast, findings suggested that girls with low self-esteem maintain a constant moderate level of anxiety regardless of their experience of daily hassles.

In a study examining the influence of general self-concept, attributional style, and stress in the development of depressive symptoms among early adolescents, Robinson et al. (1995) reported a three-way interaction between negative attributional style, general self-concept, and stressors. In particular, results indicated that individuals categorized as having low general self-concept scores and high negative attributional style scores reported higher levels of depressive symptoms four to five months later under conditions of high stress. In contrast, for those individuals who obtained low general self-concept scores and low negative attributional style scores, depressive symptom scores did not significantly fluctuate as a function of stress level.

Robinson and her colleagues (1995) conducted their analyses with a combined sample of boys and girls and did not statistically control for the overlap between depressive and anxiety symptoms. These methodological differences, combined with the fact that attributional style was not measured in the present study, prohibit a direct comparison between their results and the results of the current investigation. Nevertheless, the findings of both studies are consistent in revealing that individuals with

low general self-concept scores maintain a moderate level of distress (i.e., depressive and anxiety symptoms), regardless of whether they are reporting high or low levels of stress. Moreover, the findings of Robinson and her colleagues (1995) highlight the importance of considering the interactive influence of general self-concept and attributional style in studies aimed at understanding the influence of these variables in the development of depressive and anxiety symptoms under conditions of stress.

Although little unique variance in anxiety symptoms was accounted for by either daily hassles alone, or the combination of daily hassles and general self-concept scores, these findings are consistent with the results of previous studies. The amount of variance accounted for by hassles is compatible with previous prospective studies aimed at predicting symptoms (Compas, Howell, Phares, Williams, & Giunta, 1989; Robinson et al., 1995). Moreover, such results are similar to those obtained by other investigators who have conducted prospective tests of cognitive diathesis-stress models (see Barnett & Gotlib, 1988; Haaga et al., 1991 for reviews). Indeed, the difficulty in finding theorized moderator effects from a statistical perspective has been well documented (e.g., McClelland & Judd, 1993; MacCallum & Mar, 1995). Consistent with claims that the power to detect interactions is often weak, other prospective studies that have obtained interaction effects have similarly found that the interaction between cognitive variables and stress explains little unique variance in symptom levels (e.g., Hilsman & Garber, 1995).

Overall, results pertaining to Stage 1 analyses indicated that initial symptom levels were the most powerful predictors of depressive and anxiety symptom scores six

months later. With the exception of the prediction of anxiety symptoms among girls, global measures of self-concept and daily hassles, either alone or in combination, did not significantly contribute to the prediction of depressive and anxiety symptoms over a six-month period. That prior symptom levels accounted for the bulk of the explained variance is consistent with other prospective studies in which initial symptom levels have been statistically controlled (Allgood-Merten et al., 1990; Nolen-Hoeksema, Girgus, & Seligman, 1992; Robinson et al., 1995).

In an effort to more adequately investigate the unique contribution of self-concept in the prediction of depressive and anxiety symptoms, and consistent with the assertion that self-concept can best be understood from a multidimensional perspective, Stage 2 analyses were aimed at discerning the relative contribution of specific self-concept scores in predicting depressive and anxiety symptom scores. Given the paucity of research and disparity in results of studies aimed at examining the association between multidimensional self-concepts, depressive and anxiety phenomena, predictions regarding the etiological influence of specific facets were limited. In particular, a prospective association between physical appearance and depressive symptoms was expected, but only for girls. Generally then, analyses aimed at determining the relative influence of specific facets were deemed exploratory and were conducted in consideration of Marsh's internal/external frame of reference model.

The internal/external frame of reference model was developed to account for the typically observed near-zero correlations between math and verbal self-concepts. Consistent with previous studies, correlations between math and verbal self-concepts

were near-zero for both boys and girls in the present study. In view of Marsh's contention that specific cognitive processes account for the near-zero correlations, math and verbal self-concepts were considered separately in an attempt to fully explore the potential influence of these facets in predicting symptoms and to eliminate the possibility of the internal/external model confounding the results. Results supported the hypothesized prospective association between physical appearance and depressive symptoms for girls but only when considered in association with verbal self-concept scores. Findings additionally indicated that verbal self-concept contributes to the prediction of depressive symptoms over and above Time 1 depressive and anxiety symptoms. In contrast, when the set of self-concept variables included math but not verbal self-concept scores, findings indicated that none of the self-concept variables contributed to the prediction of depressive symptoms for girls once initial symptom levels were held constant.

For boys in the present study, results suggested that none of the self-concept variables was important in predicting depressive symptoms, regardless of whether math or verbal self-concept scores were included in the regression equation. However, in those analyses aimed at predicting anxiety symptoms, results indicated that math, school, and physical ability self-concept scores were important predictors. When the set of self-concept variables included verbal but not math self-concept scores, none of the self-concept variables were found to contribute to the prediction of anxiety symptoms.

In support of the argument that self-concept cannot be adequately understood unless its multidimensionality is taken into account, the current results demonstrated that

examination of specific self-concept scores explained more unique variance in symptom scores than did general self-concept scores. That the set of self-concept variables (which included math self-concept) explained slightly more unique variance in Time 2 anxiety symptom scores than either Time 1 anxiety or depressive symptom scores among the sample of boys is remarkable and attests to the potential importance of self-concept in influencing the development of anxiety symptoms. The amount of variance explained, compared with that accounted for among girls, is particularly persuasive given the difference in sample size between the two groups. Furthermore, the pivotal influence of math self-concept is highlighted by the nonsignificant contribution of self-concept variables when verbal rather than math self-concept scores were included in the equation. Interestingly, a similar pattern of results was obtained for girls, with results indicating that verbal rather than math self-concept scores were germane to the prediction of both depressive and anxiety symptoms.

The disparity in findings across criterion variables for boys may be accounted for by differences in the range of scores obtained by boys on measures of anxiety and depressive symptoms. More specifically, as was noted earlier, although studies have shown the BDI to be a reliable and valid instrument for use with nonclinical adolescents, the distribution of scores tends to be kurtotic among nonclinical samples. Boys also obtained a more restricted range of scores on the BDI than did girls. Moreover, compared to the BDI, boys obtained a wider range of scores on the STAI. The more restricted range of scores obtained by boys on the BDI, coupled with the difference in sample size across gender, may at least partially account for the disparity in findings

across gender and across criterion variables for boys. Additional research is necessary to determine the extent to which the current results hold with other nonclinical samples of boys and girls who are more similar in terms of sample size and range of depressive and anxiety symptom scores.

In a recent review aimed at understanding the emergence of gender differences in depression during adolescence, Nolen-Hoeksema and Girgus (1994) concluded that the risk factors for boys and girls are the same and that these risk factors are already more common in girls than in boys before early adolescence. They additionally asserted that these preexisting gender differences are thought to interact with the biological (e.g., body dissatisfaction associated with pubertal changes coupled with negative life events) and social challenges (e.g., sexual abuse, parental and peer expectations and attitudes) of early adolescence. Unfortunately, none of the studies they reviewed were explicitly aimed at investigating the influence of multidimensional self-concepts in the development of depressive symptoms, precluding a direct comparison between the current findings and those included in their review.

The present results suggest that the risk factors for developing depressive and anxiety symptoms are different for boys and girls. Consistent with gender-role stereotypes, self-concepts in the areas of math and physical ability represented two of the three (i.e., math, physical ability, school) greatest risk factors for anxiety symptoms among boys, whereas self-concepts in the areas of physical appearance and verbal were consistent risk factors for depressive and anxiety symptoms among girls. These findings are compatible with those reported by Harter and Jackson (1993). Specifically, based on

retrospective reports, adolescent girls were more likely than boys to cite physical appearance as the primary cause of their depressed affect (Harter & Jackson, 1993). Once depressed however, males seem to be equally vulnerable to body dissatisfaction. In particular, research has shown that both male and female adolescents with elevated scores on self-report measures of depression are significantly more dissatisfied with their bodies than their male and female counterparts (Rierdan et al., 1987, 1988). Similarly, studies of adolescent and adult clinical samples have shown that reports of depression are associated with greater dissatisfaction in the area of physical appearance (Beck et al., 1992; Evans et al., in press).

Numerous investigators have suggested that increased socialization pressures and pubertal changes during early adolescence lead boys and girls to assume gender-role appropriate personality characteristics and behaviors. The *gender intensification hypothesis* posits that pubertal change in early adolescence stimulates a greater focus on one's gender for both boys and girls (Hill & Lynch, 1983). Boys tend to identify more strongly with the masculine stereotype whereas girls identify more strongly with the feminine stereotype. As such, adolescents will adopt more positive attitudes about and engage in activities that they regard as most congruent with their respective gender roles. Consistent with the gender intensification hypothesis, one may speculate that gender differences in the relevance of specific facets reflect differences in the perceived pressure to feel competent in gender-role appropriate domains. As such, boys are more likely than girls to ascribe particular significance to math and physical ability domains, whereas girls are more likely than boys to hold aspirations of competence in the domains of verbal

and physical appearance. In view of the observed gender difference in self-concept scores, it follows that girls will be more vulnerable to the development of symptoms than boys under such circumstances. With particular relevance to physical appearance, McCarthy's (1990) model is applicable. She argues that body dissatisfaction, combined with the belief that attractiveness is important, contributes to women's proclivity to become depressed. According to McCarthy, the gender difference is predicted to emerge during puberty, when physical changes increase the discrepancy between the body image of the adolescent girl and the cultural ideal. The present findings are compatible with these hypotheses. However, further research is needed to directly test them.

In their conclusions, Nolen-Hoeksema and Girgus (1994) encouraged researchers to articulate and test interactive models and to investigate whether such models also pertain to the observed gender difference in rates of other types of "internalizing disorders" such as anxiety and eating disorders. The current findings suggest that specific facets of self-concept independently contribute to the prediction of anxiety symptoms among boys and girls and to the prediction of depressive symptoms among girls. Similarly, results of Stage 1 analyses indicate that the development of anxious symptomatology is not contingent upon high levels of stress among girls with low general self-concept scores.

Returning to a more global level of analysis and combining the samples of boys and girls, two models for understanding the causal relations among general self-concept, daily hassles, depressive and anxiety symptoms were posited and tested in the third stage

of analyses. Consistent with the notion that cognitive diatheses such as self-concept actively influence the processing of environmental events, the first model hypothesized that general self-concept influences one's perceptions of daily hassles. In turn, daily hassles influence the development of anxiety symptoms. A direct causal path between general self-concept and anxiety symptoms also was posited, as well as a causal path between Time 1 anxiety symptoms and Time 2 depressive symptoms. Support for this model was obtained, suggesting that general self-concept influences the development of anxiety symptoms both directly and indirectly through its influence on perceptions of daily hassles. Furthermore, anxiety symptoms temporally precede the development of depressive symptoms. In accord with Hammen's (1991) stress generation model of depression and with abstractions of the self as agent, the second model hypothesized that depressive symptoms at Time 1 influence daily hassles scores at Time 2, both directly and indirectly through their influence on general self-concept. Again, support for this model was obtained.

Considered together, tests of the two causal models highlight the potentially active influence of self-conceptions in the development of symptoms, as well as the reciprocal influence of symptoms on self-concept and perceptions of daily hassles. That is, self-concept influences perceptions of daily hassles which, in turn, influence the development of anxiety symptoms. Anxiety symptoms then influence the development of symptoms of depression. Once depressive symptoms develop, the experience of depression then influences one's self-perceptions, as well as perceptions of daily hassles, thereby increasing the risk for maintaining and/or exacerbating symptoms. Although the

results of Stage 3 analyses are compatible with these inferences, the design of this study does not allow for definitive conclusions regarding this process. In order to adequately capture the reciprocal and sequential influence of self-concept, hassles, and symptoms, a longitudinal design comprised of several testing periods is required.

Results additionally indicate that a more comprehensive model(s) may be necessary to fully understand the causal relations among self-concept, daily hassles, and symptoms. In particular, although both models were supported, large residual errors (i.e., errors in the prediction of latent constructs) were found for each of the models. Large disturbance terms generally indicate that specific variable(s) may be missing in the models. Consistent with cognitive theoretical models of depression, and with a considerable body of empirical literature, the inclusion of variables pertaining to the processing of social and environmental information may be informative. For example, studies have shown that individuals selectively attend to information that can be easily assimilated into their existing knowledge about self and others (Giesler, Josephs, & Swann, 1996; Markus, 1977; Swann, 1983; Swann & Read, 1981). Moreover, numerous studies have shown that individuals in a depressed mood are more likely to recall negative memories, to think negatively about themselves, to evaluate environmental events more negatively, and to make internal attributions for negative events than nondepressed persons (see Coyne & Gotlib, 1983; Haaga et al., 1991 for reviews of the relevant literature). Such findings are compatible with the premises tested in Models 1 and 2 and may at least partially account for the large residual errors associated with latent constructs. In particular, the causal relations among self-concept,

daily hassles, and symptoms may be further expounded by the inclusion of variables aimed at accessing such information processing variables.

Alternatively and/or additionally, other cognitive or psychosocial variables such as social support or coping style may be included. For example, implicit in Model 1 is the assumption that perceptions of daily hassles influence the development of anxiety symptoms. However, specific cognitive processes (e.g., attributional style, locus of control) influencing such perceptions and thereby mediating the association between daily hassles and anxiety symptoms were not considered. For example, consistent with Stage 1 results and the results reported by Robinson et al. (1995), individuals with both low general self-concept scores and high negative attributional style scores may experience greater distress concerning items such as “doing badly on a task” if they believe that they are unable to avow themselves of any control of the situation or if they attribute the event to internal, global, stable factors (e.g., “I did badly on that task because I am stupid; I do badly on everything; and I am never going to get any better”). In contrast, concordant with the direct pathway posited between general self-concept and anxiety, individuals with low general self-concept scores and low negative attributional style scores would be expected to experience a chronic moderate level of anxiety regardless of the level of daily hassles they reported.

The degree to which distress related to daily stress persists also may vary as a function of the degree to which one mobilizes social support or engages in particular types of coping strategies. Based on the theoretical formulation put forth by Nolen-Hoeksema and with the empirical work of she and her colleagues (e.g., Nolen-

Hoeksema, 1994; Nolen-Hoeksema, Morrow, & Fredrickson, 1993; Nolen-Hoeksema, Parker, & Larson, 1994), research suggests that the inclusion of variables related to a ruminative style of coping may increase the explanatory power of the models, particularly as they pertain to the observed gender difference in the rates of depressive symptoms and disorders.

Overall, results suggest that a more complex model of the etiology of anxiety and depressive symptoms is necessary for a more comprehensive understanding of the development of such symptoms. Consistent with this supposition, other investigators in the area of depression have begun to test more comprehensive models, integrating cognitive and interpersonal theories of depression (e.g., Hammen, 1995; Roberts et al., 1996) and self-esteem and attributional cognitive theories of depression (e.g., Hilsman et al., 1995; Metalsky et al., 1993). As indicated by the number of possible candidates for inclusion in causal models outlined previously (e.g., information processing variables, psychosocial variables such as coping style and social support), a number of alternative and increasingly complex models may be plausible. Hence, as noted earlier and highlighted by Breckler (1990), although support for the hypothesized models was gained, it is possible that other models could be postulated and that the data would similarly support the hypothesized causal structure. For example, although the temporal relation between anxiety and depressive symptoms was posited on the basis of solid theoretical and empirical rationale and was supported, the correlations between Time 1 and Time 2 depressive and anxiety symptoms indicate some stability in symptom scores over a six-month period, particularly among girls. Such an observation, coupled with the

large disturbance term associated with the Time 2 depressive symptoms construct, highlights the need for further research aimed at investigating the temporal association between anxiety and depressive symptoms.

The helplessness-hopelessness theory of depression (Alloy, Kelly, Mineka, & Clements, 1990) and Bowlby's theory of attachment (Bowlby, 1969, 1980, 1988) are compatible with the supposition that anxiety precedes depression and provide directions for future research. From the perspective of attachment theory, danger or the threat of the loss of an attachment figure may provoke the agitation and anxiety characteristic of protest. As the individual becomes more certain of the loss, symptoms of hopelessness, despair, and despondency (i.e., depression) may ensue. According to proponents of the helplessness-hopelessness theory of depression (Alloy et al., 1990), anxiety precedes depression and is associated with a sense of helplessness whereas depression is associated with a sense of hopelessness. If efforts to exert control fail, and the individual becomes increasingly convinced of his/her sense of helplessness, "certain helplessness accompanied by an uncertain negative outcome expectancy would produce a symptom pattern of mixed anxiety and depression. If the individual becomes convinced of his or her helplessness and certain that the bad outcome will occur, hopelessness depression should set in" (p. 521).

On this basis, it may be hypothesized that individuals experience a chronic level of anxiety before their anxiety and sense of helplessness leads to a sense of hopelessness and despair (i.e., depression). These theories would therefore suggest that it is important that subjects be assessed at shorter, more regular intervals than was the case in this

study. The use of a daily diary approach, wherein subjects are asked to keep systematic diaries or to make daily ratings of their symptoms and other relevant cognitive (including helplessness and hopelessness cognitions) and psychosocial variables, may be instructive in understanding the temporal association between depressive and anxiety symptoms, as well as the processes underlying the development and comorbidity of such symptoms.

General Implications of Findings

The results of this research have important implications for researchers and clinicians working in the area of depression. First, the present results have potential theoretical implications for our current models of depression and anxiety. Although the significance of self-concept as a defining characteristic of both disorders is apparent in current conceptions of negative affectivity, a negative self-concept tends to be considered a more central characteristic of depression than of anxiety (Clark & Beck, 1989; Haaga, Dyck, & Ernst, 1991; Kendall & Ingram, 1989; Watson, Clark, et al., 1995). For example, Beck (1987) argues that depression is typified by a negative cognitive triad comprised of negative views of the self, the world, and the future. Considerable controversy has surrounded the causal aspect of Beck's theory, as well as his traditional notion of a negative self-schema that lies dormant until activated under conditions of stress. As noted earlier, the influence of self-schemata or other specific variables inherent to information-processing paradigms were not considered in the

present study.⁸ However, the influence of self-concept in the development of depressive and anxiety symptoms was a major component of the research hypotheses.

Results of the present study do not necessarily imply “causality” but they do suggest that self-concept, especially when conceptualized as a multidimensional construct, may be an important predictor of symptoms of distress as measured six months later, particularly symptoms of anxiety. Recognizing that additional research is necessary to determine the extent to which the present findings can be replicated and possibly extended, the current results nevertheless indicate that the influence of self-concept, especially specific facets, warrant consideration in theoretical models of both depressive and anxiety symptoms among adolescents. Findings also suggest that gender should be considered in theoretical accounts of the etiology of symptoms and that more complex and integrative (e.g., self-esteem and attributional cognitive theories) theories may advance our understanding of the development and comorbidity of depressive and anxiety symptoms.

Second, contrary to predictions based on traditional cognitive diathesis-stress

⁸Beck makes a theoretical distinction between the terms self-schema and self-concept. Consistent with the synonymous use of the terms self-concept and self-esteem, Beck asserts that self-concept is comprised of both evaluative and descriptive components. According to Beck, self-schemata guide the input of self-relevant data by directing the screening, encoding, differentiating, organizing, and retrieval of environmental information. Stronger self-schemas are presumed to have a greater influence on the input of self-relevant information and hence self-concept (i.e., data supporting the self-concept will be processed, whereas data not supporting the self-concept will be ignored). For example, in depression, self-schemata are instrumental in directing individuals' cognitive processing toward critical self-evaluations. As such, data supporting a depressed person's negative self-concept are more readily accepted by the individual than data fostering positive self-evaluations (Beck, 1987; Beck et al., 1990).

models, the current findings suggest that conditions of high stress are not necessary for the development of symptoms among individuals with low self-concept scores. Moreover, consistent with the work of other investigators such as Hammen and colleagues (1989), Metalsky and colleagues (1993), and Turner and Cole (1994), the present results highlight the relevance of investigating cognitive diatheses at a more specific level of analysis. In particular, results indicated that specific self-concept facets (cf. general self-concept scores) made greater unique contributions to the prediction of anxiety symptoms for both boys and girls and to the prediction of depressive symptoms for girls.

Third, the present findings denote that gender differences should be considered in programs aimed at preventing the development of depressive and anxiety symptoms. Consistent with the gender intensification hypothesis, it appears that girls and boys are at risk for developing symptoms of distress as a function of their perceived competence in domains considered most conformant with their respective gender roles. As such, educational and awareness programs may be aimed at identifying adolescents at risk and reducing adolescents' pressure to succeed in domains ascribed as most relevant to their particular gender. For example, programs may be aimed at increasing teachers', parents', and other key figures' awareness of the potential significance of self-concept in the development of depressive and anxiety symptoms among adolescents. Ideally, increased education and awareness will lead to the identification of adolescents who are at risk and will enable individuals who play a significant role in the lives of adolescents to intervene before vulnerable adolescents develop symptoms of distress. In a similar vein,

efforts may be made to encourage the recognition and celebration of adolescents' strengths, regardless of whether or not they are consistent with socially prescribed gender roles.

Finally, results indicated that depressive and anxiety symptoms were the best predictors of depressive or anxiety symptoms six months later. Coupled with the observation that correlation coefficients between Time 1 and 2 symptoms imply some stability, particularly among girls, these findings suggest that such symptoms are not particularly transitory over a six-month period. Recognizing that depressive symptoms are correlated with significant impairment in school and peer functioning (Gotlib et al., 1995) and are risk factors for the development of diagnosable episodes of depression (Compas et al., 1993; Lewinsohn & Rohde, 1993), early intervention is critical in preventing the development of associated problems. Similarly, early intervention may be instrumental in thwarting the chronic persistence of depressive and/or anxious symptomatology.

Limitations of the Present Research

Numerous limitations of the present investigation provide directions for future research. As outlined previously, the ADHI is currently in the initial stages of its development and validation. The assessment of its psychometric properties indicates that additional research is necessary to further refine and evaluate the ADHI. In particular, the internal consistencies of the subscales warrant further development and

augmentation. Moreover, the convergent and discriminant validity should continue to be assessed against other theoretically similar and distinct constructs, respectively. Finally, the test-retest reliability should be assessed with shorter time intervals and factorial validity and invariance testing across gender should be considered.

All measures used in the present study were structured as self-report scales. The validity of self-report measures of depressive symptoms among adolescent samples has been documented (Moretti, Fine, Haley, & Marriage, 1985). The use of self-report is particularly appropriate given the nature of the constructs (e.g., self-concept, perceptions of daily hassles) that were being studied. Moreover, psychometrically sound measures were carefully selected and, in the absence of such a measure of daily hassles, the ADHI was developed and evaluated. Of particular relevance to the present hypotheses, invariance testing across gender had been conducted for two of the measures most germane to the research hypotheses - the BDI and the SDQ II.

In spite of these merits, additional research that uses interviewing methods such as those described by Brown and colleagues (e.g., Brown, 1989; Brown & Harris, 1978) may advance our understanding of the association between life stress and symptomatology. For example, although the present measure of daily hassles allows for an assessment of the extent to which specific events are considered hassles, the specific appraisal process is not accessed. That is, what accounts for individual differences in the appraisal of specific items as hassles? To what extent do objective environmental circumstances (e.g., family living arrangements, socioeconomic status) influence one's

appraisal of events and what accounts for individual differences in appraisals among those experiencing comparable environmental circumstances?

As indicated by Coyne and Whiffen (1995), diatheses such as self-concept may be so intrinsically linked with the social and environmental context of individuals that disentangling the relative influence of each may be a formidable task. Interviewing procedures such as those noted above or that described by Ge, Lorenz, Conger, Elder, and Simons (1994) may be instructive in discerning the relative influence of personality and social/environmental variables and in advancing our understanding of the increased prevalence and observed gender difference in depressive symptoms which emerges during adolescence. Ge et al. (1994) used an interview procedure and assessed adolescents and their families yearly at four time points. Using a latent growth curve approach, Ge and colleagues (1994) were able to determine the specific time at which the gender difference in depressive symptoms became most pronounced and the moderating influence of parental warmth and support in protecting daughters from adverse life changes during adolescence. Future research may use a similar approach in studying the interplay between an individual and his or her social context, incorporating person variables such as self-concept in an attempt to further understand the relative and joint influence of social and personality variables in the development of symptomatology.

Although a prospective design (six month time interval) was employed in Study 2 and analyses revealed interesting gender differences in the prospective association between predictors and outcome variables, a more lengthy longitudinal study which follows males and females from late childhood through to late adolescence would

provide additional insight into the observed gender difference in depressive symptoms that emerges during early adolescence. Unfortunately, although results of Stage 1 and 2 analyses suggest that Stage 3 results may differ on the basis of gender, the size of the samples precluded testing the models separately for males and females. Combining the samples of males and females in the third stage of analyses therefore limits the clarity with which findings can be generalized. As research in the area accumulates and knowledge advances, studies should continue to assess the specificity of causal models both with respect to gender and in relation to other symptoms and disorders (e.g., externalizing behaviors, substance abuse). Moreover, given the findings based on Stage 2 analyses, as well as studies aimed at examining more specific diathesis-stress models (e.g., Hammen, Marks, Mayol, & de Mayo, 1985; Hilsman & Garber, 1995), specific causal models which reflect the differential experiences of males and females should be developed and tested. Finally, beyond considering alternative methods of data collection and the inclusion of additional variables in future studies, future research needs to examine the extent to which the current results can be replicated for other nonclinical, as well as clinical adolescent samples.

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APPENDIX A

Questionnaire used in Study I

INSTRUCTIONS

Research is being done at the University of Ottawa. We are interested in understanding how high school students' views of themselves and their environments affect their reactions to stress and their general health.

Your answers will be kept private/confidential. Your name will not be on the questionnaires, and only investigators will have access to the information. Teachers or parents will not have access to information concerning your own specific answers to the questions.

Although the time will vary from person to person, answering the questions will probably take about 40 minutes in total. When answering the items, we ask that you try to be as honest and accurate as possible. *is important to remember that there are no right and wrong answers, we are simply interested in your honest opinions.* Also, we would like it if you did not leave any of the questions blank, but instead picked the response that best describes your thoughts and feelings for the item. Of course, you do not have to answer any question that you don't feel comfortable answering.

Thank you for your help with this research project!!

MY DAILY HASSLES

We would like to know how much each of the following items has been a hassle or a minor stressor for you the past week. **HASSLES** are things that irritate, annoy, or bother you; they can make you feel upset, angry, frustrated. Please think about how much each of the following items has been a hassle for you in the past week and then circle the appropriate number to the right of each item.

	<u>not at all</u>		<u>average</u>		<u>very much</u>	
1. getting good grades at school	1	2	3	4	5	6
2. difficulties concentrating	1	2	3	4	5	6
3. being bullied or teased by other people	1	2	3	4	5	6
4. saving money	1	2	3	4	5	6
5. fitting in with the "right" group of friends	1	2	3	4	5	6
6. having deadlines	1	2	3	4	5	6
7. making mistakes	1	2	3	4	5	6
8. being successful at the things I do	1	2	3	4	5	6
9. doing badly on a task	1	2	3	4	5	6
10. doing homework	1	2	3	4	5	6
11. uncertainty about my parents'/stepparents' marriage	1	2	3	4	5	6
12. relating with my teachers	1	2	3	4	5	6
13. thinking about world problems (e.g., the environment, people starving, racism)	1	2	3	4	5	6
14. taking classes I don't like	1	2	3	4	5	6
15. wondering how a problem will turn out	1	2	3	4	5	6
16. thinking about whether I'm going to be punished for something I did	1	2	3	4	5	6
17. thinking about what I have to do in the next few days	1	2	3	4	5	6
18. sexual relations	1	2	3	4	5	6
19. being embarrassed	1	2	3	4	5	6
20. knowing people are talking about me	1	2	3	4	5	6
21. looking my best	1	2	3	4	5	6
22. not doing well on school assignments	1	2	3	4	5	6
23. not achieving my personal goals	1	2	3	4	5	6
24. being good at the things that I do	1	2	3	4	5	6
25. wondering about someone's health who is close to me	1	2	3	4	5	6
26. not being given enough responsibility	1	2	3	4	5	6
27. thinking about my future	1	2	3	4	5	6
28. questioning the meaning of life	1	2	3	4	5	6
29. obeying rules	1	2	3	4	5	6
30. pressure to do drugs, drink alcohol, or smoke cigarettes	1	2	3	4	5	6
31. not knowing what to expect in the future	1	2	3	4	5	6

	<u>not at all</u>		<u>average</u>		<u>very mu</u>	
32. relating to someone of the opposite sex	1	2	3	4	5	6
33. family living arrangements	1	2	3	4	5	6
34. not being able to understand something	1	2	3	4	5	6
35. regretting past decisions	1	2	3	4	5	6
36. not finishing things I start	1	2	3	4	5	6
37. relations with members of my family/stepfamily	1	2	3	4	5	6
38. threat of violence	1	2	3	4	5	6
39. not living up to my own expectations	1	2	3	4	5	6
40. not living up to expectations of my family/stepfamily	1	2	3	4	5	6

SOCIAL SUPPORT

The following questions ask about people who provide you with help or support. Each question has two parts. For the first part, list all the people you know, excluding yourself, whom you can count on for help or support in the manner described. You may either give the person's initials or their relationship to you. Do not list more than one person next to each of the letters beneath the question.

For the second part, think about these people and circle how satisfied you are with the overall support they give you.

If you have no support for a question, check the word "No one", but still rate your level of satisfaction. Do not list more than five persons per question.

Please answer all questions as best you can.

1. Who can you really count on to distract you (help you escape) from your worries when you feel under stress?

No one _____

a. _____

b. _____

c. _____

d. _____

e. _____

	<u>Not Satisfied</u>		<u>Moderately Satisfied</u>		<u>Very Satisfied</u>	
How satisfied are you with the help or support these people give you?	1	2	3	4	5	6

2. Who can you really count on to help you feel more relaxed when you are under pressure or tense?

No one _____

a. _____

b. _____

c. _____

d. _____

e. _____

Not
Satisfied

Moderately
Satisfied

V
Sat

How satisfied are you with the help or support these people give you?

1

2

3

4

5

6

3. Who accepts you totally, including both your worst and your best points?

No one _____

a. _____

b. _____

c. _____

d. _____

e. _____

Not
Satisfied

Moderately
Satisfied

V
Sat

How satisfied are you with the help or support these people give you?

1

2

3

4

5

6

4. Who can you really count on to care about you, regardless of what is happening to you?

No one _____

a. _____

b. _____

c. _____

d. _____

e. _____

Not
Satisfied

Moderately
Satisfied

V
Sati

How satisfied are you with the help or support these people give you?

1

2

3

4

5

6

5. Who can you really count on to help you feel better when you are feeling generally down-in-the-dumps?

No one _____

a. _____

b. _____

c. _____

d. _____

e. _____

	<u>Not</u>		<u>Moderately</u>		<u>Very</u>
	<u>Satisfied</u>		<u>Satisfied</u>		<u>Satisfied</u>

How satisfied are you with the help or support these people give you?

1	2	3	4	5	6
---	---	---	---	---	---

6. Who can you count on to help you when you are very upset?

No one _____

a. _____

b. _____

c. _____

d. _____

e. _____

	<u>Not</u>		<u>Moderately</u>		<u>Very</u>
	<u>Satisfied</u>		<u>Satisfied</u>		<u>Satisfied</u>

How satisfied are you with the help or support these people give you?

1	2	3	4	5	6
---	---	---	---	---	---

7. Who can you count on to help you solve your problems?

No one _____

a. _____

b. _____

c. _____

d. _____

e. _____

	<u>Not</u>		<u>Moderately</u>		<u>Very</u>
	<u>Satisfied</u>		<u>Satisfied</u>		<u>Satisfied</u>

How satisfied are you with the help or support these people give you?

1	2	3	4	5	6
---	---	---	---	---	---

MY THOUGHTS

Using the 1-7 scale below, please show how much you think each item is true by circling the appropriate number to the right of the item. There are no correct or incorrect answers. Please be as accurate and honest as you can in responding to each item.

	<u>not true at all</u>			<u>very true</u>		
1. To get what I want, I have to please the people in charge.	1	2	3	4	5	6
2. When I don't do well at something, it is usually my own fault.	1	2	3	4	5	6
3. I can pretty much control what will happen in my life.	1	2	3	4	5	6
4. I don't have much chance of doing what I want if adults don't want me to do it.	1	2	3	4	5	6
5. Many times I can't figure out why good things happen to me.	1	2	3	4	5	6
6. When something goes wrong for me, I usually can't figure out why it happened.	1	2	3	4	5	6

MY HEALTH

Using the 1-7 scale below, indicate how often you have experienced each of the symptoms below over the past term.

	<u>Never</u>		<u>Once a month</u>		<u>More than once a week</u>	
1. Nausea	1	2	3	4	5	6
2. Muscle tension in your neck	1	2	3	4	5	6
3. Headaches	1	2	3	4	5	6
4. Colds or flu	1	2	3	4	5	6
5. Abdominal or stomach pain	1	2	3	4	5	6

MY BELIEFS

Below are some statements with which you may agree or disagree. Using the 1-7 scale below, indicate your agreement by circling the appropriate number to the right of each item. Please be as accurate and honest as you can in responding to each item, and try not to let your answer to one question influence your answer to another question.

	<u>Don't agree at all</u>		<u>Sort of agree</u>			<u>Strongly agree</u>	
1. In uncertain/unsure times, I usually expect the best.	1	2	3	4	5	6	7
2. It's easy for me to relax.	1	2	3	4	5	6	7
3. If something can go wrong for me, it will.	1	2	3	4	5	6	7
4. I always look on the bright side of things.	1	2	3	4	5	6	7
5. I'm always optimistic/hopeful about my future.	1	2	3	4	5	6	7
6. I enjoy my friends a lot.	1	2	3	4	5	6	7

	<u>Don't agree</u> <u>at all</u>		<u>Sort of</u> <u>agree</u>		<u>Strongly</u> <u>agree</u>	
7. It's important for me to keep busy.	1	2	3	4	5	6
8. I hardly ever expect things to go my way.	1	2	3	4	5	6
9. Things never work out the way I want them to.	1	2	3	4	5	6
10. I don't get upset too easily.	1	2	3	4	5	6
11. I'm a believer in the idea that "every cloud has a silver lining" (there's something good in everything, even in bad situations).	1	2	3	4	5	6
12. I rarely count on good things happening to me.	1	2	3	4	5	6
13. In general, I am happy most of the time.	1	2	3	4	5	6

THOUGHTS ABOUT MYSELF

Using the 1-7 scale below, indicate the degree to which you feel that each item describes your feelings about yourself by circling the appropriate number to the right of each item.

	<u>Does not</u> <u>Describe me at all</u>		<u>Describe</u> <u>me Very V</u>	
1. I feel that I am a person of worth, at least on an equal basis with others.	1	2	3	4
2. I feel that I have a number of good qualities.	1	2	3	4
3. All in all, I am inclined to feel that I am a failure.	1	2	3	4
4. I am able to do things as well as most other people.	1	2	3	4
5. I feel I do not have much to be proud of.	1	2	3	4
6. I take a positive attitude toward myself.	1	2	3	4
7. On the whole, I am satisfied with myself.	1	2	3	4
8. I wish I could have more respect for myself.	1	2	3	4
9. I certainly feel useless at times.	1	2	3	4
10. At times I think I am no good at all.	1	2	3	4

LIFE SATISFACTION

Below are five statements with which you may agree or disagree. Using the 1-7 scale below, indicate your agreement by circling the appropriate number to the right of the item. Please be open and honest in your responding.

	<u>Don't agree</u> <u>at all</u>			<u>Sort of</u> <u>agree</u>		<u>Strongly</u> <u>agree</u>
1. In most ways my life is close to my ideal.	1	2	3	4	5	6
2. The conditions of my life are excellent.	1	2	3	4	5	6
3. I am satisfied with my life.	1	2	3	4	5	6
4. So far I have gotten the important things I want in life.	1	2	3	4	5	6
5. If I could live my life over, I would change almost nothing.	1	2	3	4	5	6

MY EXPERIENCES

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you be asked to indicate how often you felt or thought a certain way. Although some of the questions are similar there are differences between them and you should treat each one as a separate question. The best approach is to answer each question fairly quickly. That is, don't try to count up the number of times you felt a particular way but rather indicate the alternative that seems like a reasonable estimate. For each question, circle the appropriate number.

	<u>never</u>	<u>almost</u> <u>never</u>	<u>sometimes</u>	<u>fairly</u> <u>often</u>
1. In the last month, how often have you been upset because of something that happened unexpectedly?	1	2	3	4
2. In the last month, how often have you felt that you were unable to control the important things in your life?	1	2	3	4
3. In the last month, how often have you felt nervous and "stressed"?	1	2	3	4
4. In the last month, how often have you dealt successfully with irritating life hassles?	1	2	3	4
5. In the last month, how often have you felt that you were effectively coping with important changes that were occurring in your life?	1	2	3	4
6. In the last month, how often have you felt confident about your ability to handle your personal problems?	1	2	3	4
7. In the last month, how often have you felt that things were going your way?	1	2	3	4
8. In the last month, how often have you found that you could not cope with all the things that you had to do?	1	2	3	4
9. In the last month, how often have you been able to control irritations in your life?	1	2	3	4

	<u>never</u>	<u>almost never</u>	<u>sometimes</u>	<u>fairly often</u>	<u>very often</u>
10. In the last month, how often have you felt that you were on top of things?	1	2	3	4	5
11. In the last month, how often have you been angered because of things that happened that were outside of your control?	1	2	3	4	5
12. In the last month, how often have you found yourself thinking about things that you have to accomplish?	1	2	3	4	5
13. In the last month, how often have you been able to control the way you spend your time?	1	2	3	4	5
14. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	1	2	3	4	5

BACKGROUND INFORMATION

Gender: Male _____ Female _____

Age: _____ years old

School: _____

First Language spoken at home: _____

Parent Education: Please indicate the highest level achieved.

	Mother	Father
a. elementary school	_____	_____
b. high school	_____	_____
c. college	_____	_____
d. university	_____	_____
e. other (specify)	_____	_____

THANK YOU VERY MUCH for your help.

APPENDIX B

Questionnaire used in Study 2

THOUGHTS ABOUT MYSELF

This is a chance to look at yourself. There are no right or wrong answers and everyone will have different answers. Be sure that your answers show how you feel about yourself. When you are ready to begin, please read each sentence and decide your answers. There are six possible answers for each question -- "True", "False", and four answers in between. There are six numbers next to each sentence one for each of the answers. The answers are written at the top of the page. Choose your answer to a sentence and circle the number under the answer you choose. DO NOT say your answer aloud or talk about it with anyone else.

Before you start there are three examples below. I have already answered two of the three sentences to show you how to do it. In the third one you must choose your own answer and put in your own circle.

			More False	More True		
	Mostly False	Than True	Than False	Mostly True		
False	False	True	False	True	True	

1. I like to read comic books.

1 2 3 4 5 6

(I circled the number 6 under the answer "True". This means that I really like to read comic books. If I did not like to read comic books very much, I would have answered "False" or "Mostly False".)

2. In general, I am neat and tidy.

1 2 3 4 5 6

(I answered "More false than true" because I am definitely not very neat, but I am not really messy either.)

3. I like to watch T.V.

1 2 3 4 5 6

(For this sentence you have to choose the answer that is best for you. First you must decide if the sentence is "True" or "False" for you, or somewhere in between. If you really like to watch T.V. a lot you would answer "True" by circling the number 6. If you hate watching T.V. you would answer "False" by putting a circle around the number 1. If you do not like T.V. very much, but you watch it sometimes, you might decide to put a circle around the number to indicate "Mostly False" or the number for "More False Than True".

If you want to change an answer you have marked you should cross out your answer and put a new answer on the same line. For all the sentences be sure that your circle is on the same line as the sentence you are answering. You should have one answer and only one answer for each sentence. Do not leave out any sentences, even if you are not sure which answer to choose.

If you do not have any questions, please turn over the page and begin.

	False	Mostly False	More False Than True	More True Than False	Mostly True	True
1. Mathematics is one of my best subjects.	1	2	3	4	5	6
2. Nobody thinks that I'm good looking.	1	2	3	4	5	6
3. Overall, I have a lot to be proud of.	1	2	3	4	5	6
4. I sometimes take things that belong to other people.	1	2	3	4	5	6
5. I enjoy things like sports, gym, and dance.	1	2	3	4	5	6
6. I'm hopeless in English classes.	1	2	3	4	5	6
7. I am usually relaxed.	1	2	3	4	5	6
8. My parents are usually unhappy or disappointed with what I do.	1	2	3	4	5	6
9. People come to me for help in most school subjects.	1	2	3	4	5	6
10. It is difficult to make friends with members of my own sex.	1	2	3	4	5	6
11. People of the opposite sex that I like don't like me.	1	2	3	4	5	6
12. I often need help in mathematics.	1	2	3	4	5	6
13. I have a nice looking face.	1	2	3	4	5	6
14. Overall, I am no good.	1	2	3	4	5	6
15. I am honest.	1	2	3	4	5	6
16. I am lazy when it comes to things like sports and hard physical exercise.	1	2	3	4	5	6
17. I look forward to English classes.	1	2	3	4	5	6
18. I worry more than I need to.	1	2	3	4	5	6
19. I get along well with my parents.	1	2	3	4	5	6
20. I'm too stupid at school to get into a good university.	1	2	3	4	5	6
21. I make friends easily with boys.	1	2	3	4	5	6
22. I make friends easily with girls.	1	2	3	4	5	6
23. I look forward to mathematics classes.	1	2	3	4	5	6

	False	Mostly False	More False Than True	More True Than False	Mostly True	True
24. Most of my friends are better looking than I am.	1	2	3	4	5	6
25. Most things I do I do well.	1	2	3	4	5	6
26. I sometimes tell lies to stay out of trouble.	1	2	3	4	5	6
27. I'm good at things like sports, gym, and dance.	1	2	3	4	5	6
28. I do badly on tests that need a lot of reading ability.	1	2	3	4	5	6
29. I don't get upset very easily.	1	2	3	4	5	6
30. It is difficult for me to talk to my parents.	1	2	3	4	5	6
31. If I work really hard I could be one of the best students in my school year.	1	2	3	4	5	6
32. Not many people of my own sex like me.	1	2	3	4	5	6
33. I'm not very popular with members of the opposite sex.	1	2	3	4	5	6
34. I have trouble understanding anything with mathematics in it.	1	2	3	4	5	6
35. I am good looking.	1	2	3	4	5	6
36. Nothing I do ever seems to turn out right.	1	2	3	4	5	6
37. I always tell the truth.	1	2	3	4	5	6
38. I am awkward at things like sports, gym, and dance.	1	2	3	4	5	6
39. Work in English classes is easy for me.	1	2	3	4	5	6
40. I am often depressed and down in the dumps.	1	2	3	4	5	6
41. My parents treat me fairly.	1	2	3	4	5	6
42. I get bad marks in most school subjects.	1	2	3	4	5	6
43. I am popular with boys.	1	2	3	4	5	6
44. I am popular with girls.	1	2	3	4	5	6
45. I enjoy studying for mathematics.	1	2	3	4	5	6
46. I hate the way I look.	1	2	3	4	5	6

	False	Mostly False	More False Than True	More True Than False	Mostly True	True
47. Overall, most things I do turn out well.	1	2	3	4	5	6
48. Cheating on a test is OK if I do not get caught.	1	2	3	4	5	6
49. I'm better than most of my friends at things like sports, gym, and dance.	1	2	3	4	5	6
50. I'm not very good at reading.	1	2	3	4	5	6
51. Other people get more upset about things than I do.	1	2	3	4	5	6
52. I have lots of arguments with my parents.	1	2	3	4	5	6
53. I learn things quickly in most school subjects.	1	2	3	4	5	6
54. I do not get along very well with boys.	1	2	3	4	5	6
55. I do not get along very well with girls.	1	2	3	4	5	6
56. I do badly in tests of mathematics.	1	2	3	4	5	6
57. Other people think I am good looking.	1	2	3	4	5	6
58. I don't have much to be proud of.	1	2	3	4	5	6
59. Honesty is very important to me.	1	2	3	4	5	6
60. I try to get out of sports and physical education classes whenever I can.	1	2	3	4	5	6
61. English is one of my best subjects.	1	2	3	4	5	6
62. I am a nervous person.	1	2	3	4	5	6
63. My parents understand me.	1	2	3	4	5	6
64. I am stupid at most school subjects.	1	2	3	4	5	6
65. I have good friends who are members of my own sex.	1	2	3	4	5	6
66. I have lots of friends of the opposite sex.	1	2	3	4	5	6
67. I get good marks in mathematics.	1	2	3	4	5	6
68. I am ugly.	1	2	3	4	5	6
69. I can do things as well as most people.	1	2	3	4	5	6
70. I sometimes cheat.	1	2	3	4	5	6

	False	Mostly False	More False Than True	More True Than False	Mostly True	True
71. I can run a long way without stopping.	1	2	3	4	5	6
72. I hate reading.	1	2	3	4	5	6
73. I often feel confused and mixed up.	1	2	3	4	5	6
74. I do not like my parents very much.	1	2	3	4	5	6
75. I do well in tests of most school subjects.	1	2	3	4	5	6
76. Most boys try to avoid me.	1	2	3	4	5	6
77. Most girls try to avoid me.	1	2	3	4	5	6
78. I never want to take another mathematics course.	1	2	3	4	5	6
79. I have a good looking body.	1	2	3	4	5	6
80. I feel that my life is not very useful.	1	2	3	4	5	6
81. When I make a promise I keep it.	1	2	3	4	5	6
82. I hate things like sports, gym, and dance.	1	2	3	4	5	6
83. I get good marks in English.	1	2	3	4	5	6
84. I get upset easily.	1	2	3	4	5	6
85. My parents really love me a lot.	1	2	3	4	5	6
86. I have trouble with most school subjects.	1	2	3	4	5	6
87. I make friends easily with members of my own sex.	1	2	3	4	5	6
88. I get a lot of attention from members of the opposite sex.	1	2	3	4	5	6
89. I have always done well in mathematics.	1	2	3	4	5	6
90. If I really try I can do almost anything I want to do.	1	2	3	4	5	6
91. I often tell lies.	1	2	3	4	5	6
92. I have trouble expressing myself when I try to write something.	1	2	3	4	5	6
93. I am a calm person.	1	2	3	4	5	6
94. I'm good at most school subjects.	1	2	3	4	5	6

	False	Mostly False	More False Than True	More True Than False	Mostly True	True
95. I have few friends of the same sex as myself.	1	2	3	4	5	6
96. I hate mathematics.	1	2	3	4	5	6
97. Overall, I'm a failure.	1	2	3	4	5	6
98. People can really count on me to do the right thing.	1	2	3	4	5	6
99. I learn things quickly in English classes.	1	2	3	4	5	6
100. I worry about a lot of things.	1	2	3	4	5	6
101. Most school subjects are just too hard for me.	1	2	3	4	5	6
102. I enjoy spending time with my friends of the same sex.	1	2	3	4	5	6

MY DAILY HASSLES

We would like to know how much each of the following items has been a hassle or a minor stressor for you the past week. HASSLES are things that irritate, annoy, or bother you; they can make you feel upset, angry, or frustrated. Please think about how much each of the following items has been a hassle for you in the past week and then circle the appropriate number to the right of each item.

	<u>not at all</u>		<u>average</u>			<u>very mu</u>	
1. getting good grades at school	1	2	3	4	5	6	7
2. difficulties concentrating	1	2	3	4	5	6	7
3. being bullied or teased by other people	1	2	3	4	5	6	7
4. saving money	1	2	3	4	5	6	7
5. fitting in with the "right" group of friends	1	2	3	4	5	6	7
6. having deadlines	1	2	3	4	5	6	7
7. making mistakes	1	2	3	4	5	6	7
8. being successful at the things I do	1	2	3	4	5	6	7
9. doing badly on a task	1	2	3	4	5	6	7
10. doing homework	1	2	3	4	5	6	7
11. uncertainty about my parents'/stepparents' marriage	1	2	3	4	5	6	7
12. relating with my teachers	1	2	3	4	5	6	7
13. thinking about world problems (e.g., the environment, people starving, racism)	1	2	3	4	5	6	7

	<u>not at all</u>		<u>average</u>			<u>very much</u>	
14. taking classes I don't like	1	2	3	4	5	6	7
15. wondering how a personal problem will turn out	1	2	3	4	5	6	7
16. thinking about whether I'm going to be punished for something I did	1	2	3	4	5	6	7
17. thinking about what I have to do in the next few days	1	2	3	4	5	6	7
18. sexual relations	1	2	3	4	5	6	7
19. being embarrassed	1	2	3	4	5	6	7
20. knowing people are talking about me	1	2	3	4	5	6	7
21. looking my best	1	2	3	4	5	6	7
22. not doing well on school assignments	1	2	3	4	5	6	7
23. not achieving my personal goals	1	2	3	4	5	6	7
24. being good at the things that I do	1	2	3	4	5	6	7
25. wondering about someone's health who is close to me	1	2	3	4	5	6	7
26. not being given enough responsibility	1	2	3	4	5	6	7
27. thinking about my future	1	2	3	4	5	6	7
28. questioning the meaning of life	1	2	3	4	5	6	7
29. obeying rules	1	2	3	4	5	6	7
30. pressure to do drugs, drink alcohol, or smoke cigarettes	1	2	3	4	5	6	7
31. not knowing what to expect in the future	1	2	3	4	5	6	7
32. relating to someone of the opposite sex	1	2	3	4	5	6	7
33. family living arrangements	1	2	3	4	5	6	7
34. not being able to understand something	1	2	3	4	5	6	7
35. regretting past decisions	1	2	3	4	5	6	7
36. not finishing things I start	1	2	3	4	5	6	7
37. relations with members of my family/stepfamily	1	2	3	4	5	6	7

MY MOOD

On this questionnaire are groups of statements. Please read each group of statements carefully. Then pick out the one statement in each group which best describes the way you have been feeling the PAST WEEK INCLUDING TODAY! Circle the number beside the statement you picked. If several statements in the group seem to apply equally well, circle each one. Be sure to read all the statements in each group before making your choice.

1. 0 I do not feel sad.
 1 I feel sad.
 2 I am sad all the time and I can't snap out of it.
 3 I am so sad or unhappy that I can't stand it.
2. 0 I am not particularly discouraged about the future.
 1 I feel discouraged about the future.
 2 I feel I have nothing to look forward to.
 3 I feel that the future is hopeless and that things cannot improve.
3. 0 I do not feel like a failure.
 1 I feel I have failed more than the average person.
 2 As I look back on my life, all I can see is a lot of failures.
 3 I feel I am a complete failure as a person.
4. 0 I get as much satisfaction out of things as I used to.
 1 I don't enjoy things the way I used to.
 2 I don't get real satisfaction out of anything anymore.
 3 I am dissatisfied or bored with everything.
5. 0 I don't feel particularly guilty.
 1 I feel guilty a good part of the time.
 2 I feel quite guilty most of the time.
 3 I feel guilty all of the time.
6. 0 I don't feel I am being punished.
 1 I feel I may be punished.
 2 I expect to be punished.
 3 I feel I am being punished.
7. 0 I don't feel disappointed in myself.
 1 I am disappointed in myself.
 2 I am disgusted in myself.
 3 I hate myself.
8. 0 I don't feel I am any worse than anybody else.
 1 I am critical of myself for my weaknesses or mistakes.
 2 I blame myself all the time for my faults.
 3 I blame myself for everything bad that happens.
9. 0 I don't have any thoughts of killing myself.
 1 I have thoughts of killing myself, but I would not carry them out.
 2 I would like to kill myself.
 3 I would kill myself if I had the chance.
10. 0 I don't cry any more than usual.
 1 I cry more now than I used to.
 2 I cry all the time now.
 3 I used to be able to cry, but now I can't cry even though I want to.

11. 0 I am no more irritated now than I ever am.
1 I get annoyed or irritated more easily than I used to.
2 I feel irritated all the time now.
3 I don't get irritated at all by the things that used to irritate me.
12. 0 I have not lost interest in other people.
1 I am less interested in other people than I used to be.
2 I have lost most of my interest in other people.
3 I have lost all of my interest in other people.
13. 0 I make decisions about as well as I ever could.
1 I put off making decisions more than I used to.
2 I have greater difficulty in making decisions than before.
3 I can't make decisions at all anymore.
14. 0 I don't feel I look any worse than I used to.
1 I am worried that I am looking old or unattractive.
2 I feel that there are permanent changes in my appearance that make me look unattractive.
3 I believe that I look ugly.
15. 0 I can work about as well as before.
1 It takes an extra effort to get started at doing something.
2 I have to push myself very hard to do anything.
3 I can't do any work at all.
16. 0 I can sleep as well as usual.
1 I don't sleep as well as I used to.
2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
3 I wake up several hours earlier than I used to and cannot get back to sleep.
17. 0 I don't get more tired than usual.
1 I get tired more easily than I used to.
2 I get tired from doing almost anything.
3 I am too tired to do anything.
18. 0 My appetite is no worse than usual.
1 My appetite is not as good as it used to be.
2 My appetite is much worse now.
3 I have no appetite at all anymore.
19. 0 I haven't lost much weight, if any, lately.
1 I have lost more than 5 pounds. I am purposely trying to lose weight
2 I have lost more than 10 pounds. by eating less. Yes ____ No ____
3 I have lost more than 15 pounds.
20. 0 I am no more worried about my health than usual.
1 I am worried about physical problems such as aches and pains; or upset stomach;
or constipation.
2 I am very worried about physical problems and it's hard to think of much else.
3 I am so worried about my physical problems that I cannot think about anything else.
21. 0 I have not noticed any recent change in my interest in sex.
1 I am less interested in sex than I used to be.
2 I am much less interested in sex now.
3 I have lost interest in sex completely.

SELF-PERCEPTIONS

This questionnaire has to do with your attitudes about some of your activities and abilities. For the first 12 items below, you should rate yourself relative to *other high school students* your own age by using the following scale:

1	2	3	4	5	6	7	8	9	10
bottom	lower	lower	lower	lower	upper	upper	upper	upper	top
5%	10%	20%	30%	50%	50%	30%	20%	10%	5%

An example of the way the scale works is as follows: if one of the items that follows were "height", a girl who is just below average in height would choose "5" for this question, whereas a girl who is taller than 90% (but not taller than 90%) of her female classmates would mark "8", indicating that she is in the top 20% of the dimension.

- | | |
|--|--|
| 1. intellectual/academic ability ____
2. relations with parents ____
3. physical attractiveness ____
4. verbal ability ____
5. opposite sex peer relations ____
6. ability in math ____ | 7. social skills/social competence ____
8. athletic ability ____
9. emotional stability ____
10. same sex peer relations ____
11. artistic and/or musical ability ____
12. honesty/trust ____ |
|--|--|

Now rate how *certain* you are of your standing/rating on each of the above items (you may choose any number):

1	2	3	4	5	6	7	8	9
not at all				moderately				extremely
certain				certain				certain

- | | |
|--|--|
| 1. intellectual/academic ability ____
2. relations with parents ____
3. physical attractiveness ____
4. verbal ability ____
5. opposite sex peer relations ____
6. ability in math ____ | 7. social skills/social competence ____
8. athletic ability ____
9. emotional stability ____
10. same sex peer relations ____
11. artistic and/or musical ability ____
12. honesty/trust ____ |
|--|--|

Now rate how personally *important* each of these domains is to you:

1	2	3	4	5	6	7	8	9
not at all				moderately				extremely
important				important				important
to me				to me				to me

- | | |
|--|--|
| 1. intellectual/academic ability ____
2. relations with parents ____
3. physical attractiveness ____
4. verbal ability ____
5. opposite sex peer relations ____
6. ability in math ____ | 7. social skills/social competence ____
8. athletic ability ____
9. emotional stability ____
10. same sex peer relations ____
11. artistic and/or musical ability ____
12. honesty/trust ____ |
|--|--|

Now rate yourself relative to your "*ideal*" self -- the person you would be if you were exactly the way you would *like* to be:

1	2	3	4	5	6	7	8	9
very short of my ideal self			somewhat like and somewhat unlike my ideal self			very much like my ideal self		

1. intellectual/academic ability ____
2. relations with parents ____
3. physical attractiveness ____
4. verbal ability ____
5. opposite sex peer relations ____
6. ability in math ____

7. social skills/social competence ____
8. athletic ability ____
9. emotional stability ____
10. same sex peer relations ____
11. artistic and/or musical ability ____
12. honesty/trust ____

A sample of five items from the State-Trait Anxiety Inventory - State form (STAI-S; Spielberger, 1983) is outlined below. These items have been reproduced by permission from Mind Garden.

I feel calm.

I am presently worrying over possible misfortunes.

I feel nervous.

I am jittery.

I feel frightened.

BACKGROUND INFORMATION

Name: _____

Gender: Male _____ Female _____

Age: _____ years old

Date of birth: _____
day/month/year

First Language: French _____ English _____ Other _____ (please check one)

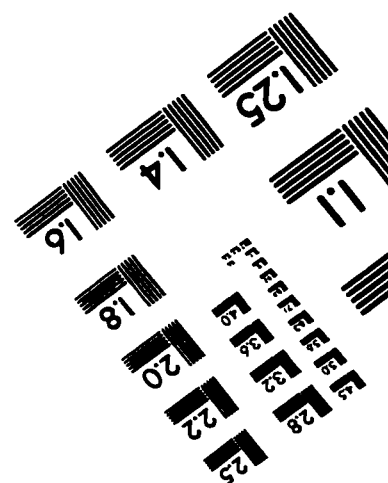
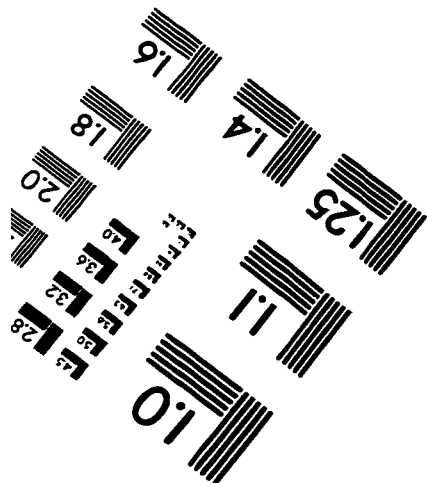
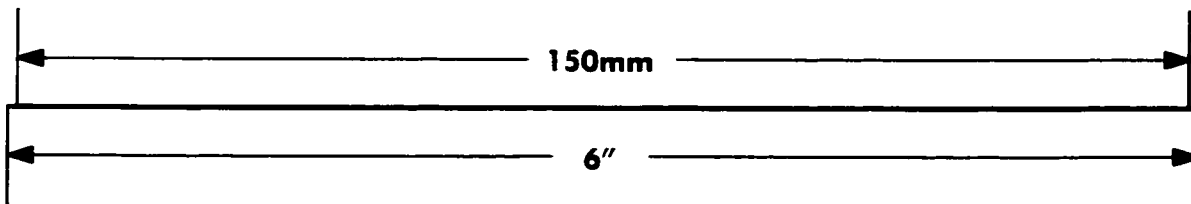
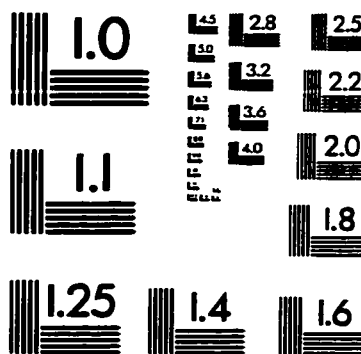
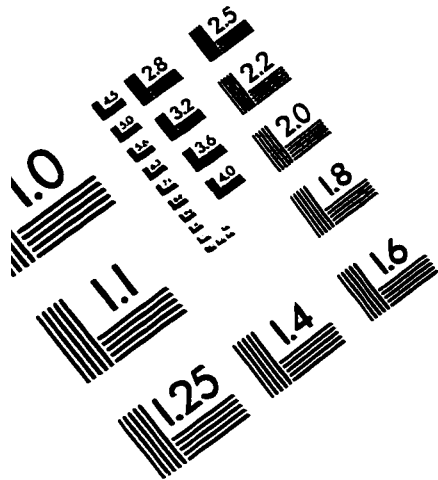
Parent Education: Please indicate the highest level achieved.

	Mother	Father
a. elementary school	_____	_____
b. high school	_____	_____
c. college	_____	_____
d. university	_____	_____
e. other (specify) _____	_____	_____

THANK YOU VERY MUCH FOR YOUR HELP! Please indicate if there was any reason you had difficulty filling out the questionnaires. Any written comments or suggestions regarding the research project would be greatly appreciated.

Thanks again!!

IMAGE EVALUATION TEST TARGET (QA-3)



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