

AN INVESTIGATION OF THE RELATIONSHIP BETWEEN POSITIVE AND
NEGATIVE MENTAL HEALTH FACTORS AND ACADEMIC PERFORMANCE
AMONG EARLY ADOLESCENT GIRLS

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ABSTRACT

The transition to adolescence is considered to be a period filled with increased turmoil, often disrupting youth's psychological well-being and resulting in numerous poor outcomes. This study examined the relationship between aspects of mental health and students' academic performance and their beliefs about their academic capabilities among a normative sample of middle school girls. Measures of mental health problems as well as emotional strengths were included. Forty middle school girls from two schools were included in this study. Sixteen of the participants attended a small, predominantly White private school and the remaining 24 students attended a larger and more diverse public school. Pearson correlations were run with the entire sample and at the two schools separately to identify the relationship between the mental health variables and the academic outcomes. Results indicated that mental health functioning was significantly related to students' feelings about their academic abilities, such that students reporting high levels of distress reported more negative attitudes about their own abilities and students reporting high levels of emotional strengths reported more positive academic attitudes. The psychological variables were not, however, correlated with students' true performance on math and reading tests. Results were more pronounced at the more diverse public school than they were at the small private school. These results suggest that more comprehensive screening procedures that look at students' psychological and academic functioning may be important to better understand students' needs and to provide appropriate school-based interventions.

This study also examined the effectiveness of a school-based depression prevention program, the Girls in Transition program, which is designed to promote

resiliency among middle school girls. Students at the two schools were randomly assigned to receive the intervention immediately (n = 17) or were put into a wait-list control group (n = 20). Data were collected at three separate times: before the intervention began, immediately following the intervention, and at a six-month follow-up period. Paired samples t-tests and one-way ANOVAs were run to examine changes in the study variables over time for each group and group differences at both follow-up periods. Results revealed that students who participated in the program reported increased use of adaptive coping strategies at both follow-up periods. They also reported reductions in symptoms of anxiety and anhedonia and increases in social self-efficacy. Scores among students in the wait-list control group remained stable, though two unanticipated findings were observed. Differences between the two groups at either follow-up period were not detected. Despite evidence of a relationship between mental health factors and academics, participants did not demonstrate gains in any of the academic measures included in this study. Results from this study offer encouraging support for the effectiveness of the Girls in Transition program, though they were severely limited by small sample sizes and high attrition rates.

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CHAPTER 1

INTRODUCTION

Untreated mental health problems in adolescence seriously threaten lifelong stability and success. Mental health problems during adolescence have been associated with academic difficulties, social problems, risk taking behavior, and suicide (e.g. Elliott, Huizinga, & Menard, 1989; Montemayor, 1983). They are also pervasive, with approximately 25%-50% of adolescents experiencing mental health problems. Furthermore, apropos of this dissertation, those rates are dramatically higher among adolescent girls (Costello, Egger, & Angold, 2005; Merikangas et al., 2010).

Two of the most common psychiatric disorders among adolescents are anxiety and depression. Anxiety is characterized by excessive worrying that is difficult to control (American Psychological Association, 2000). There are a number of different types of anxiety disorders, including social anxiety disorder, generalized anxiety disorder, panic disorder, specific phobia, agoraphobia, and post-traumatic stress disorder. Approximately one-third of adolescents between the ages of 13 and 18 years old have experienced symptoms of an anxiety disorder (Merikangas et al., 2010). Although rates of depression are somewhat lower than anxiety, a majority of adolescents who experience depressive symptoms report severe impairment (Merikangas et al., 2010). Key features of depression include feelings of sadness or emptiness and loss of interest or pleasure in previously enjoyed activities (American Psychological Association, 2000). Rates of depression increase dramatically during adolescence – while 3-8% of 13 year olds have experienced

a depressive episode, that number rises to nearly 21% for 18 year olds (Hankin et al, 1998; Merikangas et al., 2010).

Anxiety, depression, and other mental health problems can lead to a number of deleterious outcomes in adolescence, including intrapersonal problems, interpersonal problems, academic difficulties, and engagement in high-risk behaviors. For example, adolescents who develop negative attitudes about themselves and their future may be more likely to experience issues related to self-esteem, may withdraw from their peers or develop strained relationships with their parents, and/or present increased risk for academic underachievement or school drop out (e.g. Hirschfeld et al., 2000; Kazdin, Rodgers, & Colbus, 1986; Wagner et al., 2003). Adolescents with mental health problems are also at an increased risk for academic underachievement and school drop out (Wagner et al., 2003). Additionally, young people with psychiatric problems may be more likely to engage in high-risk behaviors, including risky sexual behavior and substance use or abuse (Elliott, Huizinga, & Menard, 1989; Ramrakha, Caspi, Dickson, Moffitt, & Paul, 2000). Finally, mental health problems, in extreme cases, can lead to suicidal ideation and even suicide attempts. Though suicide is often considered to be a low frequency behavior among teens, it is ranked as the third leading cause of death among adolescents worldwide (Wasserman, Cheng, & Jiang, 2005).

Mental health problems, if left untreated, can lead to even greater detrimental effects later on in life. For example, teenagers with low self-esteem are more likely to have physical and mental health problems, fewer economic prospects, and increased criminal convictions (Trzesniewski et al., 2006). Strained relationships with parents have been associated with a number of negative outcomes for teens, including increased

distress, development of psychiatric disorders, substance abuse, and suicide (Montemayor, 1983). Teens who have dropped out of school without earning a high school diploma are at increased risk for unemployment, involvement in crime, and other health problems (Freudenberg & Ruglis, 2007). Risk-taking behaviors during adolescence can lead to additional problems, such as unexpected pregnancies, contraction of sexually transmitted diseases, drug addiction, and conviction (Tapert, Aarons, Sedlar, & Brown, 2001). It is clear that mental health problems during adolescence can lead to unanticipated problems in the future as well.

There are many reasons why adolescence poses unique risks for the development of mental health problems. Adolescents experience a series of physical, social, and other developmental changes, all of which have the potential to produce significant stress. Puberty causes adolescents' bodies to undergo significant change as they mature into adults. Adolescents may be dissatisfied with these changes in their bodies, particularly if the changes do not occur at the same time as their peers (Stice, 2003). Adolescents also experience numerous social changes at this time. During this period, more time is spent with peers instead of parents and greater emphasis is placed on popularity and "fitting in" (Buhrmester & Furman, 1987; Flack, Salmivalli, & Idsoe, 2011). Similarly, adolescents begin developing their sexual identities and experimenting with romantic and sexual experiences (Natsuaki, Biehl, & Ge, 2009). Finally, as students enter middle school, many school structures lead to environments that are less developmentally appropriate for youth (Eccles & Roeser, 2009). For example, middle schools increase their emphasis on academic performance rather than learning. Students also lose the opportunity to develop close relationships with teachers as they enter schools with larger student bodies and

complex class schedules. Perhaps most unfortunately, adolescents experience many of these changes synchronously, which increases their risk for mental health problems (Petersen, Leffert, Graham, Alwin, & Ding, 1997).

While the risk for mental health problems and emotional distress increases for all adolescents, girls experience an even higher risk. One study found that while approximately 26% of adolescent boys experienced symptoms of at least one anxiety disorder, 38% of girls were symptomatic (Merikangas et al., 2010). Gender differences in rates of depression are particularly stark. Although rates of depression tend to be similar across genders during childhood, by adolescence, girls are two times more likely to suffer from depression than boys (Hankin et al., 1998). Nolen-Hoeksema and Girgus (1994) found that girls are more likely to possess certain risk factors that increase their vulnerability towards depression. For example, girls are more likely to be reliant on social relationships, possess pessimistic attributional styles, demonstrate low levels of assertiveness, and utilize maladaptive coping strategies such as rumination. In addition to their increased level of risk, girls are more likely to face challenges during adolescence in comparison to boys. Nolen-Hoeksema and Girgus (1994) found the interaction between adolescent girls' increased risk and their higher levels of stress to contribute to the gender differences in adolescent depression.

Girls are vulnerable to a unique set of problems. One of the most widely recognized areas of concern for adolescent girls is body image. Although males at this age may experience body and appearance dissatisfaction, it is much more common and pervasive among females (Bucchianeri, Arikian, Hannan, Eisenberg, & Neumark-Sztainer, 2013; Calzo et al., 2012). If left untreated, these problems can lead to disordered

eating, low self-esteem, and depressed mood (Attie & Brooks-Gunn, 1989; Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2006). Additionally, the social changes that adolescents face may manifest as particularly challenging for girls. Girls are more likely to experience relational aggression, for instance, which has been associated with mental health problems (Brown, 2003; Crick & Nelson, 2002). Additionally, although some adolescent boys are uncomfortable with their bodies, girls are particularly vulnerable to body dissatisfaction, which can result in other feelings of distress as well (McCarthy, 1990). There is some evidence demonstrating that the accumulative effects of experiencing a number of stressful life events place girls at increased risk for mental health problems (Ge, Lorenz, Conger, Elder, & Simons, 1994). These stressors may increase adolescent girls' vulnerability to psychological distress. Furthermore, girls' and boys' differing social orientations exacerbate these differences (Nolen-Hoeksema & Girgus, 1994). Girls report being more socially oriented, more cooperative, and less aggressive than boys. While these differences are inconsequential during childhood, as girls reach adolescence and face increased challenges, these pre-existing differences interact with the stressors and amplify girls' risk for mental health problems, particularly depression.

The way that girls respond to challenges poses further risk. Girls are more likely to respond to stress with coping strategies that can increase their level of distress. Whereas boys tend to externalize distress onto others, girls are more likely to deal with conflicts internally (Cramer, 1979). Similarly, boys are better able to distract themselves from and minimize their depressed moods, while girls are more likely to amplify their mood through rumination (Nolen-Hoeksema, 1987). Therefore, in addition to the

increased stressors that adolescent girls face, their responses to these stressors further exacerbate their risk for psychological distress.

It remains vital to focus a discussion of these issues in the context of adolescents' daily lives. Academics are a primary concern of students. Therefore, it is essential to ground these arguments in the context of students' academic performance. Previous work has exposed a relationship between mental health problems and academic achievement in students. In particular, a significant research base supports the relationship between anxiety and academic difficulties (e.g. Owens, Stevenson, Hadwin, & Norgate, 2012; Seipp, 1991). Similarly, adolescent depressive symptoms have been linked to lower grade point averages (GPAs), achievement test scores, and reading levels (Fletcher, 2008; Jonsson et al., 2010; Vincenzi, 1987), and higher levels of school drop-out (Fletcher, 2008). Finally, some evidence suggests that body dissatisfaction correlates with interferences in academic functioning and achievement (Yanover & Thompson, 2008). These findings indicate that mental health problems are frequently associated with poor academic outcomes.

It is evident that mental health problems pose significant risk to adolescents. However, until recently, very few researchers examined the impact of other mental health factors. With the development of the positive psychology movement, more researchers have begun to consider how youths' intrapersonal strengths contribute to their mental health status. Using this framework, mental health problems and emotional strengths can be thought of as two independent constructs that constitute mental health status. Greenspoon and Saklofske (2001) proposed a dual-factor model of mental health that incorporates these two constructs. A majority of the research using this model focuses on

subjective well-being (SWB), which is defined as an individual's cognitive and affective evaluation of his or her life (Deiner, 2000). Life satisfaction, which is an individual's cognitive judgment of how happy he or she is, is most commonly used to measure well-being, since it is more stable than affective judgments. Life satisfaction has been associated with a number of positive outcomes, including academic success (Antaramian, Huebner, Hills, & Valois, 2010; Suldo Shaffer, 2008). Self-efficacy, another important emotional strength, refers to an individual's beliefs about his or her abilities to attain certain goals (Bandura, 1977). High levels of self-efficacy are associated with persistence and effort and contribute to academic success (Multon, Brown & Lent, 1991). Finally, coping strategies are the ways that individuals respond to stressful experiences. An individual may employ adaptive or maladaptive strategies when confronting difficult or stressful situations. Although the use of effective coping strategies can have positive effects on many student outcomes, the use of maladaptive coping strategies can result in a number of poor outcomes, including an increased risk for suicide (e.g. Compas, Connor-Smith, Saltzman, Thomson, & Wadsworth, 2001; Spirito, Francis, Overholser, & Frank, 1996).

Current interventions exist to target mental health issues within schools, but most do not examine the corresponding relationship between mental health issues and academic achievement. Additionally, few interventions look at whether emotional strengths increase as a result of participation. In order to explore these relationships and the possible effects of a school-based mental health prevention intervention, the following research questions will be explored:

1. What is the relationship between reported levels of emotional distress (anxiety, depression, hopelessness, and body image concerns), emotional strengths (life satisfaction, self-efficacy, and coping strategies), and subjective and objective measures of academic achievement among a normative sample of middle school girls?
2. Do students who participate in the Girls in Transition program, a depression prevention intervention, demonstrate any changes in their reported levels of emotional distress, emotional strengths, or academic achievement relative to students not receiving intervention?

CHAPTER 2

REVIEW OF LITERATURE

Adolescents' Risk for Emotional Distress

The transition to adolescence marks a period of increased vulnerability towards mental health problems. Mental health problems not only cause individuals severe distress, but they are also associated with a number of poor outcomes. Although negative mental health problems have been previously associated with poor academic performance (Fletcher, 2008; Seipp, 1991), they have not yet been explored using curriculum-based assessments, which are measures of academic skills using curricular materials and are capable of measuring students' academic progress over short periods of time. Given adolescents' increased risk for mental health problems, it is important to better understand how these issues impact their abilities in school.

Anxiety

Mental health problems are unfortunately fairly common among adolescents. Studies have found lifetime prevalence of disorders among adolescents to range from 37% to 49% (Costello et al., 2003; Kessler et al., 2005; Merikangas et al., 2010). In one of the largest and most up-to-date studies examining the rates of mental health disorders among adolescents residing in the United States, more than 10,000 nationally representative adolescents between the ages of 13 and 17 years were interviewed for the National Comorbidity Survey Replication Adolescent Supplement (NCS-A; Kessler et al., 2012; Merikangas et al., 2010). Adolescent participants were interviewed using the

Composite International Diagnostic Interview (CIDI), which is a structured interview used to identify *DSM-IV* diagnoses. The CIDI assessed for the presence of a number of mental health disorders, including mood disorders, anxiety disorders, behavior disorders, substance use disorders, and eating disorders. The 12-month and 30-day prevalence rates of adolescents meeting diagnostic criteria for a *DSM-IV* disorder were estimated to be 40.3% and 23.4%, respectively (Kessler et al., 2012). Nearly half (49.5%) of the adolescents in this sample met criteria for a disorder at some point prior to or during the time they were interviewed (Merikangas et al., 2010). Half of those adolescents, or about one quarter of the entire sample of adolescents (27.6% when substance abuse is included, 22.2% when it is not included), reported severe impairment, which was defined as the endorsement of high levels of impairment or symptom severity. Forty percent of the participants who met criteria for one disorder also met criteria for an additional disorder from another class. These data not only indicate that mental health problems are very common among adolescents, but that adolescents suffering from a mental health disorder are at increased risk for developing other areas of distress as well.

The NCS-A study found anxiety disorders to be the most common psychiatric disorder among adolescents (Kessler et al., 2012; Merikangas et al., 2010). In fact, 32% of the adolescents in the study met criteria for some sort of anxiety disorder, with specific phobia being the most common (Kessler et al., 2012; Merikangas et al., 2010). Although anxiety disorders were found to be the most common class of disorders among teens, only 24% of those with concerns in this area reported severe impairment (Merikangas et al., 2010). The onset of most types of anxiety disorders tended to occur during childhood, with the exception of panic disorder, which typically developed during adolescence

(Costello, Egger, & Angold, 2005). Therefore, though the rate of anxiety disorders was high among adolescents, it also tended to remain relatively stable across the pre-adolescent through adolescent years.

There are a number of ways to assess anxiety in children and adolescents. Structured and semi-structured clinical interviews such as the Anxiety Disorders Interview Schedule for DSM-IV: Child and Parent Versions (ADIS-C/P; Silverman & Albano, 1996), the Diagnostic Interview Schedule for Children (DISC-IV; Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000), and the Diagnostic Interview for Children and Adolescents (DICA-IV; Reich, 2000) are individually administered by a clinician. These measures are used to determine whether an individual meets diagnostic criteria for various disorders according to *DSM-IV* criteria. Though comprehensive, these measures often take a very long time to administer and require individual administration by a highly trained mental health worker.

In contrast, self-report measures are much more time efficient ways to assess individuals' levels of anxiety, particularly for research purposes when there are often large numbers of individuals being assessed. Self-report measures do not present diagnostic information as clinical interviews do. Instead, they provide a measure of symptom severity. Children are asked to respond to questions (by reading the items or having them read to them) based on their perceptions of their own behaviors and emotions. Some of the most common self-report measures of anxiety include the Multidimensional Anxiety Scale for Children (MASC; March, 1998), the Beck Anxiety Index for Youth (BAI-Y; Beck, Beck, Jolly, & Steer, 2005), and the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978). The RCMAS is one of

the oldest and most widely used measures of childhood anxiety in research studies. One of the greatest strengths of the RCMAS is its ability to yield subscales of specific manifestations of anxiety as well as an overall score and it provides a validity scale to determine whether the informant is responding to items truthfully (Reynolds & Richmond, 1979). The RCMAS is the most frequently used measure of anxiety in school-based mental health prevention programs (Corrieri et al., 2013). For the purposes of this study, the RCMAS was used to get a clear picture of student reported symptoms of anxiety among this specific population of female adolescents.

Depression

Another common psychiatric disorder among adolescents is depression. Though depression rates tend to be low during childhood, they increase dramatically during adolescence. According to results from the NCS-A study, approximately 12% of the adolescents in the sample met criteria for Major Depressive Disorder, with a majority (74%) of those meeting criteria reporting severe impairment (Merikangas et al., 2010). Rates of depression were almost two times higher among the older adolescents in this sample than younger adolescents. Whereas approximately 8% of the early adolescents (13-14 years old) reported symptoms of depression, more than 15% of the 17 and 18-year-old participants were symptomatic. These findings are consistent with previous studies that have found adolescents' risk for depression to increase considerably with age (e.g. Hankin et al., 1998; Saluja et al., 2004).

The assessment options for measuring depressive symptoms among adolescents are similar to those available to measure anxiety. While some researchers choose to use

diagnostic interviews to examine the presence of a disorder, many prefer to use self-report measures to assess levels of symptoms. Examples of appropriate self-report measures include the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977), the Beck Depression Inventory for Youth (BDI-Y; Beck, Beck, Jolly, & Steer, 2005), and the Children's Depression Inventory (CDI; Kovacs, 1992). The most commonly used self-report measure for research purposes is the CDI (Corrieri et al., 2013; Twenge & Nolen-Hoeksema, 2002). The CDI has been found to be a valid and reliable measure of depressive symptoms in children and adolescents (Crowley & Emerson, 1996; Smucker, Craighead, Craighead, & Green, 1986). It is frequently used as an outcome measure in studies examining the effects of depression prevention programs (e.g. Gillham, Reivich, Freres, et al., 2006; Jaycox, Reivich, Gillham, & Seligman, 1994). Given that the intervention being used in this study is a prevention intervention, the CDI was used to assess depressive symptoms for this population of adolescent girls.

Hopelessness

Hopelessness, which is commonly exhibited among individuals suffering from depression, is often defined as having a negative evaluation of one's future or the feeling that negative events are uncontrollable. Because of the high rates of depression among adolescents, research has examined how hopelessness contributes to these rates. In one study, Kashani, Reid, and Rosenberg (1989) found that levels of hopelessness remained stable from preadolescence through adolescence. Therefore, feelings of hopelessness are unlikely to be the cause of the increasing rates of depression. Instead, many researchers have examined a hopelessness theory of depression, which suggests that adolescents with

a cognitive vulnerability, such as a negative explanatory style, will develop a sense of hopelessness as a result of stressors, which will in turn promote the development of particular depressive symptoms (Abramson, Metalsky, & Alloy, 1989). Such theories rely on a diathesis-stress model of depression, such that individuals' way of thinking (their level of vulnerability) interacts with their experienced or perceived stress, which results in increased depressive symptoms. Research examining these theories in adolescents has confirmed this approach to thinking about the development of depression, though some studies have varied with regard to the direct or indirect role hopelessness has within the formula (Alloy et al., 2006; Hankin, Abramson, & Siler, 2001; Nolen-Hoeksema, Girgus, & Seligman, 1992).

The most well established scale used to measure hopelessness among adults is the Beck Hopelessness Scale (Beck, Weissman, Lester, & Trexler, 1974). This scale measures the affective, motivational, and cognitive aspects of hopelessness. A children's version of this scale, the Hopelessness Scale for Children (HSC; Kazdin, Rodgers, & Colbus, 1986), was developed in 1983, and was found to have strong psychometric properties (Kazdin, French, Unis, Esveldt-Dawson, & Sherick, 1983; Kazdin et al., 1986). The HSC remains the most widely used measure of hopelessness in children and adolescents.

Body Image Concerns

Adolescence marks a period of increased vulnerability towards body dissatisfaction and other physical concerns. Adolescents are highly influenced by their peers (Steinberg, 1996) as well as social and cultural pressures and norms (Harter, 1999),

all of which are constantly sending the message that appearance is important. Although greater attention is often paid to the concerns of girls, both genders are at-risk for body image concerns. According to the gender intensification hypothesis (Hill & Lynch, 1983), adolescents begin to identify with stereotypes associated with their gender as they mature. Girls are likely to adopt a thin ideal, whereas boys are likely to desire a mesomorphic build (Smolak, Levine, & Thompson, 2001). Therefore, while many girls want to be thinner, some boys want to gain or lose weight (McCabe & Ricciardelli, 2004). Among a sample of more than 3,000 high school students, approximately 68% of females and 58% of males reported a desire to change their weight (Middleman, Vazquez, & Durant, 1998). More girls wanted to lose weight than gain weight (61.6% vs. 6.8%), whereas more boys wanted to gain weight than lose weight (36.4% vs. 21.5%). Other studies have found similar results. In a study conducted by Ricciardelli and McCabe (2001), adolescents between the ages of 12 and 16 years were shown drawings of nine bodies ranging from skinny to obese and were asked to select which body reflects their current size and which reflects the size they want to be. Similar to the previous study, most girls (78.6%) selected an ideal body that was smaller than their current size, whereas most boys (53.8%) selected an ideal body that was bigger than their current body. Overall, these findings suggest that many adolescents are unhappy with the way they look.

Unlike anxiety and depression, which are clinical diagnoses, body and physical appearance dissatisfaction reflect specific areas of concern that are often associated with other clinical diagnoses, such as eating disorders. Because of this, structured clinical interviews, on their own, are not appropriate assessment tools. Instead, figure preferences

and self-report measures are typically used as assessment tools. In measures of figure preference, participants are asked to select an image or figure that they feel best represents how they currently look, and then select the drawing that represents their ideal body size. Examples of figure preference measures include the Stunkard Body Figure drawings (Stunkard, Sorensen, & Schulsinger, 1983), the Contour Drawing Rating Scale (CDRS; Thompson & Gray, 1991), and the Photographic Figure Rating Scale (PFRS; Swami, Salem, Furnham, & Tovee, 2008). These instruments provide information on how individuals perceive themselves to look and how they wish to look but are unable to measure his or her beliefs and perceptions about appearance. In contrast, more standard types of self-report measures provide information on whether an individual endorses certain beliefs or to what degree he or she believes certain things to be true. Some self-report measures include the Body Dissatisfaction subscale of the Eating Disorders Inventory-2 (EDI-2; Garner, 1991), and the Body Shape Satisfaction Scale (Pingitore, Spring, & Garfield, 1997). These two measures look specifically at children and adolescents' attitudes towards their bodies. The Physical Appearance subscale of the Self-Perception Profile for Children (SPPC; Harter, 1985) is a brief, six-item subscale that measures children's and adolescents' feelings about their body and their physical appearance. While some of the items look specifically at adolescents' perceptions of their bodies, others look at their satisfaction with their physical appearance more generally. This subscale has been used in previous studies to examine adolescents' perceptions of their physical appearance and body satisfaction (e.g. Moller & Schnurr, 1995).

Gender Differences in Emotional Distress

Because of the unique stressors that adolescent girls face, rates of many mental health problems tend to be even higher among girls. Although some girls do develop externalizing problems, adolescent girls are particularly at risk for developing internalizing problems. In one longitudinal study examining problem behaviors among a normative sample of four to sixteen year-old children, rates of internalizing problems were significantly higher among the girls than the boys (Bongers, Koot, van der Ende, & Verhulst, 2003). In this study, parents filled out the Child Behavior Checklist (CBCL; Achenbach, 1991) every two years for eight years. Although the rates of internalizing problems were equal in both genders during childhood, during adolescence, rates among girls were significantly higher than boys.

Rates of anxiety are also significantly higher among females than males. A recent epidemiological study of adults residing in the United States found that approximately one in three women met criteria for an anxiety disorder whereas only one in five men did (McLean, Asnaani, Litz, & Hofmann, 2011). Given this large discrepancy across genders, researchers have investigated when these differences first emerge. One study using retrospective data from more than 1,500 high school students in Oregon found that by age six, girls were more than two times more likely than boys to have experienced an anxiety disorder (Lewinsohn, Gotlib, Lewinsohn, Seeley, & Allen, 1998). The researchers also found that, relative to boys, the rate in which girls developed anxiety increased faster. Studies examining the differential rates of anxiety among adolescent males and females suggest that these differences continue into adolescence. In the Merikangas and colleagues' (2010) study previously discussed, 38% of adolescent females and 26% of

males met criteria for an anxiety disorder. Though rates of anxiety disorders were high across both genders, they were significantly higher among females.

Unlike anxiety, discrepancies in rates of depression do not begin to manifest themselves until adolescence. In a longitudinal study tracking students' levels of depressive symptoms across 10 years of participation, Hankin and colleagues (1998) examined the emergence of gender differences in rates of depression from preadolescence to young adulthood. Small gender differences were found between the ages of 13 and 15. During this time, girls' rates of depression increased whereas boys' rates remained stable. However, more drastic differences emerged between the ages of 15 and 18. While the rates of depression increased among both boys and girls during this period, girls exhibited steeper increases than boys. Approximately 28% of the girls in this sample had experienced a depressive episode by the time they reached 18, whereas only 14% of the boys had. These results show that rates of depression among adolescent girls are nearly double those of adolescent boys, and make girls prime targets for prevention interventions.

Other studies have confirmed the increased risk of mental health problems for adolescent girls. A cross-sectional study measuring the rates of depression among a nationally representative sample of students in 6th, 8th, and 10th grade from schools across the country reported a similarly steep increase in depression for girls relative to boys (Saluja et al., 2004). While rates were more similar across both genders among the 6th grade students (7.1% for males, 12.6% for females), females were 2.5 times more likely to be depressed than males in 10th grade, with 13.6% of males and 34.3% of females demonstrating signs of depression. The number of students in 10th grade reporting

depressive symptoms was dramatically larger than the number of students reporting symptoms in 6th grade. Rates were almost three times higher among the 10th grade females and nearly double among the males. A meta-analytic review of 310 studies reporting depressive symptoms in 61,424 children between the ages of 8 and 16 years old has also found similar trends (Twenge & Nolen-Hoeksema, 2002).

Despite girls' increased risk for developing depression during adolescence, there do not appear to be significant gender differences in reported levels of hopelessness (Hankin et al., 2001; Johnson, 1992; Kashani et al., 1989; Mazza & Reynolds, 1998). Some small differences have emerged in the literature, though their results have been inconsistent. For example, in Hankin and colleague's (2001) study examining rates of depression among a normative sample of high school students, though levels of hopelessness were similar among both genders, levels of hopelessness depression were significantly higher among the girls in the sample. In contrast, Thompson and colleagues (2005) found that girls were significantly more likely to report very low levels of hopelessness than boys, though both boys and girls were equally likely to report average to high levels of hopelessness. Overall, the findings from these studies indicate that girls are not inherently more likely than boys to report elevated levels of hopelessness, despite their increased rates of depression.

There is also clear evidence that girls are particularly vulnerable to becoming dissatisfied with their appearance. The media places a great emphasis on physical appearance and thinness in girls, which can contribute to girls' body dissatisfaction (Blowers, Loxton, Grady-Flessner, Occhipinti, & Dawe, 2003). Similarly, as adolescent girls' bodies start maturing, they typically move further away from this thin ideal

(McCarthy, 1990). In a two-year longitudinal study of adolescents between the ages of 12 and 16, the rates of body dissatisfaction were significantly higher in girls than boys (Bearman, Martinez, Stice, & Presnell, 2006). At age 13, boys and girls reported similar levels of body dissatisfaction. However, at age 14, girls reported significantly higher levels than boys. Girls' levels of dissatisfaction continued to increase steadily through the age of 16, when the study ended. Numerous studies have also found girls to have significantly higher rates of body dissatisfaction than boys (Littleton & Ollendick, 2003; Paxton, Eisenberg, Neumark-Sztainer, 2006; Presnell, Bearman, & Stice, 2004). It is because of the heightened risk for these mental health problems for girls that they are in need of additional prevention interventions specifically targeted to female-specific issues. It is hoped that with intervention in early adolescence, before these issues appear to increase dramatically, there will be greater reductions in overall rates of anxiety, depression and body dissatisfaction as they age.

Socio-Economic Status and Emotional Distress

Although all adolescents are at increased risk for mental health problems, research has found that an individual's level of risk may be impacted by their socioeconomic status. A large body of literature has demonstrated that economic hardship increases children's risk for psychological distress (e.g. Brooks-Gunn & Duncan, 1997; Costello, Compton, Keeler, & Angold, 2003; Leventhal & Brooks-Gunn, 2000; Samaan, 2000). Many different pathways by which poverty can increase youths' risk for mental health problems have been proposed. For example, the Family Stress Model suggests that families experiencing economic hardship are more likely to experience high levels of

stress and have high levels of conflict, which can disrupt or strain the development of positive parent-child relationships (Conger & Elder, 1994). Additionally, children living in high poverty neighborhoods are more likely to witness acts of violence or experience multiple traumatic life events (Xue, Leventhal, Brooks-Gunn, & Earls, 2005). Regardless of the exact pathways through which economic hardship impacts youths' psychological well-being, it is clear that children who grow up in poverty are at heightened risk for poor outcomes.

While the risk that growing up in poverty imposes is quite profound, research has also found that growing up in a family with extreme wealth can increase risk as well. In fact, Luthar and colleagues have found that children from both ends of the extreme are at similarly high risk for mental health problems (Luthar & Becker, 2002; Luthar & D'Avanzo, 1999). For example, in one study that compared the rates of mental health problems and substance use among 10th graders from a suburban school district and 10th graders from an inner-city school, the researchers found that the suburban youth reported significantly higher rates of substance use and anxiety and somewhat higher rates of depression than did the inner-city youth (Luthar & D'Avanzo, 1999). They also found that substance use was linked with depression and anxiety among the suburban youth only. In a similar study examining the impact of affluence on 6th and 7th grade students from an affluent suburban community, a relationship between affluence and substance use, anxiety, and depression was detected (Luthar & Becker, 2002). These findings suggest that affluent youth are not immune to psychological distress.

Furthermore, research suggests that adolescent girls from affluent backgrounds are at even increased risk for mental health problems. Luthar and Becker (2002) found in

their study of middle school students that the 7th grade girls had rates of depression two times higher than normative samples (14% as opposed to 7%). This was not the case for 6th grade girls or boys from either grade. This study points to the fact that middle school girls from affluent backgrounds may be particularly vulnerable and therefore a prime target for intervention.

Some of the reasons why affluent youth may be at increased risk for mental health problems and distress include experiencing increased pressure to succeed, feeling isolated from their parents, and perceiving a lack of parental monitoring. Luthar, Shoum, and Brown (2006) examined whether adolescents' participation in extracurricular activities was in and of itself a source of stress, or whether the pressure they felt to succeed was the cause of their increased stress. Results from the study suggest that the parents' attitude towards achievement was more strongly associated with adolescents' distress than was the number of hours that adolescents participated in the activities. This pressure may be particularly problematic for girls, as Luthar and Becker (2002) found that parents' emphasis on achievement was associated with high distress only among the girls in the sample. Additionally, they found high rates of depression, anxiety, and substance use among youth who have perfectionist strivings.

Another factor that increases the risk for distress among youth from affluent backgrounds is their perceived level of isolation from their parents. Luthar and Latendresse (2005) found that, similar to their low-income peers, adolescents from highly affluent backgrounds tend to perceive their parents as being physically and emotionally unavailable. Furthermore, the researchers found that parents' physical absence was linked to increased risk for psychological distress and academic difficulties. Research has also

found that Caucasian children from high affluent families are more likely to be unsupervised after school than any other subgroup of children that age (Capizzano, Tout & Adams, 2002). Similarly, according to the U.S. Department of Health and Human Services (1999a), closeness to parents is inversely linked with household income among teens. In addition to its strain on adolescents' relationships with their parents, lack of parental supervision has been shown to be linked with adolescents engaging in increased risk taking behaviors (Cottrell et al., 2003). For these reasons, youth from affluent backgrounds may be at particularly high risk for developing mental health problems and engaging in high-risk behaviors.

Emotional Distress and Academic Performance

As previously discussed, mental health problems are not only problematic in and of themselves, but they can lead to numerous poor outcomes. Particularly pertinent to this study is their relationship with academic difficulties. A meta-analysis examining the academic performance of students identified with emotional and behavioral disturbances found that these students were performing significantly below their peers (Reid, Gonzalez, Nordness, Trout, & Epstein, 2004). However, most students identified with an emotional disturbance exhibit externalizing behaviors, which are more disruptive in school. While disruptive behaviors can be damaging to academic performance, internalizing disorders can be similarly damaging and remain unidentified longer, if students are not acting out in class, and go under the radar of needing teacher intervention.

Many of the symptoms related to anxiety can negatively impact students' academic performance. Overwhelming worries and fears can interrupt students from completing their schoolwork and distract them during class. These students may also be more likely to visit the school nurse and miss out on important class time. Students with social anxiety may have trouble with school-based activities that require them to speak in front of their classmates, such as in-class presentations. Students may also develop specific anxiety about taking tests or other forms of evaluation, which can negatively impact their performance. A number of studies have found a significant relationship between students' reports of anxious symptoms and academic difficulties. In a recent study, Owens, Stevenson, Hadwin, and Norgate (2012) found that early adolescent students' reports of anxiety were associated with poor standardized test scores. Similarly, a meta-analytic review of 126 studies found that higher levels of anxiety were correlated with lower GPAs and test scores (Seipp, 1991). Interestingly, the researcher found that gender was a moderator only when the studies involving students from the United States were analyzed. Within these studies, anxiety had a higher correlation with academic performance in girls than in boys. This suggests that high levels of anxiety may be particularly detrimental to girls.

Research has also found symptoms of anxiety to have long-term effects on students' academic performance. Ialongo, Edelsohn, Wertthamer-Larsson, Crockett, and Kellam (1995) followed a sample of first grade students for four and a half years. Students filled out the RCMAS at the beginning of first grade and again at the end of fifth grade. Teachers' reports of students' behavior and students' scores on a standardized achievement battery were also collected. Results revealed that students' reported levels of

anxiety in first grade significantly predicted their achievement in fifth grade (Ialongo et al., 1995). Another study found that anxiety not only impacts students' academic performance, but also their likelihood to graduate (Van Ameringen, Mancini, & Farvolden, 2003). In this retrospective study, a sample of adults diagnosed with an anxiety disorder completed a questionnaire about whether they left school early and whether specific factors contributed to their dropping out. Almost half of the participants reported that they had left school prematurely and a quarter dropped out of high school before graduating. Over one fifth of the participants who reported that the reason they left school prematurely said it was because they would feel nervous in school, while another 17% reported leaving because of problems with public speaking in class. These findings highlight the difficulty of academic tasks for students who suffer from anxiety.

Similar to anxiety, symptoms associated with depression can impact students' achievement. For example, a common feature of depression is anhedonia, or loss of interest in most activities (APA, 2000). Students suffering from depression may have difficulty completing work due to their decrease in interest and motivation or negative attitudes about their abilities (Humensky et al., 2010). A number of studies have also examined the relationship between adolescent depressive symptoms and academic performance (e.g. Fröjd et al., 2008; Humensky et al., 2010; Jonsson et al., 2010). For example, Vincenzi (1987) examined the relationship between depressive symptoms and reading abilities in a normative sample of 6th grade students using their achievement reading achievement scores, their reading level, and their GPA. Depression scores were found to be negatively correlated with all three measures of achievement, suggesting a relationship between students' level of depressive symptoms and their reading abilities.

In another study, Humensky and colleagues (2010) found a significant relationship between adolescents' level of depressive symptoms and their perceptions of academic impairment, but no relationship was found between students' levels of depression and their grades. Interestingly, students with greater levels of depression reported that their depressive symptoms negatively impacted their ability to complete assignments and stay focused in school, which led them to develop more negative thoughts, creating a cyclical pattern.

Research has found that adolescent depression not only can impact students' performance in school, but it may also impact their level of future educational attainment. In one study, Jonsson and colleagues (2010) followed a cohort of 16-17 year old adolescents for 15 years. Students' educational achievement was measured using students' GPA, and educational attainment was determined by collecting data on whether participants had registered in higher education by the age of 30, if they were still enrolled by that age, and if and when they completed their degree. Adolescents were first screened for depressive symptoms and any teens reporting clinical levels, sub-threshold levels, or who had made a prior suicide attempt were invited to participate. Participants were matched with similar, non-depressed teens. Results indicate that depressed females had significantly lower GPAs than non-depressed females. In addition, depressed adolescents were less likely to graduate from higher education. In a similar study, Fletcher (2008) studied a cohort of middle and high school students for approximately six years. As predicted, at baseline, students' GPA was found to have a negative correlation with depressive symptoms across both genders. At follow up, gender differences were found, with female depression being negatively correlated with high school graduation and

college enrollment, suggesting that adolescent depression may have greater long-term effects in females than in males. These two studies suggest that not only does adolescent depression impact student performance, but it may also predict future attainment as well.

Perhaps not surprisingly, research has also found there to be a relationship between feelings of hopelessness and academic difficulties. In a study examining levels of hopelessness among preadolescents and adolescents, Kashani and colleagues (1989) found that high levels of hopelessness was associated with greater difficulties in school functioning and performance. The authors rationalize this finding by suggesting that students who believe that their own effort has little impact on their performance are less likely to work hard on difficult tasks. In another study, which examined hopelessness beliefs and academic variables among a sample of 741 14 and 15 year-old students from Hong Kong, a relationship between students' reported levels of hopelessness and academic achievement was detected (Au, Watkins, & Hattie, 2010). However, the researchers found that academic difficulties were likely causing the increased levels of hopelessness. Students who experienced academic failure were more likely to feel hopeless, and further disengage from school. Though the results from this study found that academic failure increases feelings of hopelessness, these findings also suggest that hopelessness may contribute to academic difficulties.

Although it is not well researched, there is reason to believe that body and physical appearance dissatisfaction may also be associated with academic difficulties. First, previous studies have established a relationship between body dissatisfaction and poor self-esteem (Tiggerman, 2005). Likewise, poor self-esteem has been associated with academic difficulties (Huebner, Gilman, & Laughlin, 1999). Therefore, it is possible that

there may be a direct or indirect link between body dissatisfaction and academic difficulties. Additionally, body image concerns could interfere with academic functioning. For example, a student who is preoccupied with looks may have difficulty concentrating in class or completing schoolwork. Yanover and Thompson (2008a; 2008b) examined the relationship between eating and body image problems and academic performance in two separate studies. A co-ed sample of more than 1,500 undergraduate students filled out a number of self-report questionnaires measuring their levels of body dissatisfaction, eating disorders, perfectionism, and the degree to which they believed their eating and body image disturbances interfered with their academic performance. In the first study, the researchers found that academic interference was associated with lower GPAs (Yanover & Thompson, 2008a). This relationship was especially strong when the scores of students who reported symptoms of eating disorders were analyzed separately. In the second study, Yanover and Thompson (2008b) examined the relationship between scores on their academic interference measure and subscales from the Multidimensional Body-Self Relations Questionnaire (MBSRQ; Cash, 2000). A number of different dimensions of body image were associated with academic interference, including appearance evaluation and overweight preoccupation. These findings suggest that students' body image concerns are related to their beliefs that their eating and body image disturbances are negatively impacting their academic performance.

Although the results from these two studies do suggest that there might be a relationship between students' body dissatisfaction and their academic performance, there are a number of limitations to these studies. First, a direct relationship between body

dissatisfaction and academic difficulties was not reported. Body dissatisfaction was correlated with the measure of academic interference, which was correlated with academic difficulties. However, the authors did not report a significant relationship between body dissatisfaction and academic performance. Second, a number of items on the academic interference measure focused on the ways in which symptoms of eating disorders interfered with academic performance. Therefore, these findings may have more to do with a relationship between eating disorders and academic performance than body dissatisfaction and academic performance. Finally, this study focused on undergraduate students. It is likely that there is some overlap with the way that eating disorders and body dissatisfaction impact undergraduate students and the way they impact middle and high school students. However, a number of the items on the academic interference measure asked about how often the student misses class because of eating and body image concerns. Undergraduate students are more likely to skip class for personal reasons than middle and high school students, since there is less adult monitoring in college. Because of these shortcomings, there is clearly need for more research that examines the relationship between students' body dissatisfaction and their academic performance.

It is evident from the overall literature that students' mental health problems are related to academic difficulties in school. These studies have focused on both objective and subjective measures of academic performance. Objective measures include students' GPAs, test scores, and other performance-based standards. In contrast, subjective measures include student and teacher perceptions of student performance in school. While some studies have found objective measures of academic performance to be

associated with mental health problems (e.g. Fletcher, 2008; Fröjd et al., 2008), others have only found subjective measures to be associated with performance (e.g. Humensky et al., 2008). There is a need for more research to systematically examine the relationship between mental health problems and both measures of academic performance.

Emotional Strengths

Until recently, most discussions of children's mental health have focused on the presence of distress. However, with the expansion of the positive psychology movement, more researchers have started focusing on mental health in more global terms by viewing it not only as the absence of psychological disorders, but also the presence of human strengths (Seligman & Csikszentmihalyi, 2000). The positive psychology movement first began in 1996 when Martin Seligman served as president of the American Psychological Association. Since then, researchers' interest in strengths and virtues has expanded. This dissertation will focus on three specific strengths – life satisfaction, self-efficacy, and coping skills, as they are hypothesized to be closely related to academic outcomes and are amenable to intervention.

Life Satisfaction

At the core of the positive psychology movement is the study of happiness, or subjective well-being (SWB). SWB comprises an individual's affective and cognitive appraisal of how happy he or she is with life as a whole. Life satisfaction, which is the cognitive piece of this judgment, is the more stable construct, and is therefore most frequently used in research to measure quality of life. According to Huebner (2004),

measures of life satisfaction can utilize a multidimensional or one-dimensional framework. Measures using a multidimensional framework evaluate respondents' reported levels of satisfaction across various domains of life that are believed to contribute to their life satisfaction. With school-aged youth, these areas include family life, friendships, school experiences, self, and living environment (Huebner, Suldo, & Valois, 2003). Examples of self-report measures of multidimensional life satisfaction include the Multidimensional Students' Life Satisfaction Scale (MSLSSS; Huebner, 1994) and the Brief Multidimensional Students' Life Satisfaction Scale (BMSLSS; Seligson, Huebner, & Valois, 2003). In contrast, one-dimensional frameworks seek to identify an individual's overall rating of his or her life satisfaction. The Students' Life Satisfaction Scale (SLSS; Huebner, 1991a), which was the first life satisfaction scale developed for children, assesses life satisfaction as a global construct. It asks students to rate their feelings about their life as a whole, rather than examining specific domains. For example, students are asked how much they agree with global statements such as "My life is going well" and "I have a good life." With this scale, students are able to evaluate their life satisfaction based on their own criteria without outside influence. Therefore, the SLSS measures students' satisfaction with their lives, and not specific aspects of their lives. The SLSS has frequently been used with adolescent students to evaluate the relationship between their life satisfaction and their academic performance (e.g. Antaramian, Huebner, Hills, & Valois, 2010; Suldo & Huebner, 2006; Suldo, Shaffer, & Riley, 2008).

Research examining life satisfaction in children has found some evidence that life satisfaction begins to decrease with age. For example, in a study of more than 1,000

students from the UK, life satisfaction, as measured using the MSLSS, decreased by 10% between the ages of 9 and 16 years old (Marks, Shah, & Westall, 2004). Additionally, the percent of students reporting low levels of life satisfaction increased with age, whereas the percent reporting high levels decreased with age. In another study, which focused on 1,274 German students between the ages of 11 and 16 years old, the older students reported significantly lower levels of life satisfaction than the younger students (Goldbeck, Schmitz, Besier, Herschbach, & Henrich, 2007). Finally, in a sample of 2,502 middle school students from the United States, students in 6th grade reported slightly higher levels of life satisfaction on the BMSLSS than students in 7th and 8th grade (Huebner, Suldo, Valois, & Drane, 2006). These results suggest that, similar to their increased rates of mental health problems, adolescents may experience lower levels of life satisfaction than children who are younger.

Self-Efficacy

Self-efficacy refers to an individual's beliefs about being able to perform certain behaviors, complete tasks, and reach goals (Bandura, 1977). High levels of self-efficacy are associated with effort and persistence, whereas low levels of self-efficacy are associated with internalizing disorders (Muris, 2002). Self-efficacy is often divided into specific domains of competence. The three domains most relevant to adolescents are emotional self-efficacy, social self-efficacy, and academic self-efficacy (Muris, 2001). Emotional self-efficacy consists of how well a person believes he or she can control emotions. Social self-efficacy includes how well a person believes he or she is able to develop peer relationships. Finally, academic self-efficacy is concerned with how well a

person believes he or she can succeed academically. In a study examining the relationship of these three domains with specific mental health problems among a sample of adolescents from Belgium, Muris (2002) found emotional self-efficacy to be correlated with generalized anxiety and panic attacks, social self-efficacy to be correlated with social phobia, and academic self-efficacy to be correlated with depression and school phobia.

One way to measure self-efficacy is to provide a person with a scale from 0-100, ranging from “Cannot do at all” to “Highly certain can do”. Researchers can choose what behavior or group of behaviors should be considered, and respondents are asked to rate their degree of confidence that they are able to perform the behavior provided (Bandura, 2006). Other common ways to measure self-efficacy are through multi-item self-report questionnaires. Examples of self-report questionnaires include the Children’s Self-Efficacy Scale (CSES; Bandura, Barabarnelli, Caprara, & Pastorelli, 1996) and the Self-Efficacy Scale for Children (SEQ-C; Muris, 2001). In contrast to other measures that focus on only one aspect of self-efficacy, strengths of these two measures are that they provide a score on overall levels of self-efficacy as well as subscales for each of the previously discussed domains. The SEQ-C has been used in previous research with adolescents to measure correlates of self-efficacy and as an outcome measure for school-based prevention programs (e.g. Muris, 2002; Suldo & Shaffer, 2007; Tak et al., 2012). Furthermore, the academic self-efficacy subscale from the SEQ-C has been used in previous research as a subjective measure of students’ academic abilities (e.g. Suldo & Huebner, 2006).

One of the most well researched domains of self-efficacy is academic self-efficacy. Studies have found that students' academic self-efficacy tends to decrease during adolescence (Britner & Pajares, 2006; Capara et al., 2008; Pajares & Valiante, 1999). As students transition into middle school, their learning environment changes dramatically (Eccles & Midgley, 1989). Students typically start moving to different classes and having many different teachers rather than remaining with one teacher for the entire day. Additionally, the focus on academic success, as measured by performance on tests and other evaluations, increases as well. As a result of these environmental changes, students' perceptions of their academic capabilities typically begin to decline during adolescence. In one study, Pajares and Valiante (1999) found that 6th grade students reported significantly lower levels of writing self-efficacy than the 7th and 8th grade students in the sample. Other studies have found similar results (Britner & Pajares, 2006; Capara et al., 2008). For example, in one longitudinal study that examined students' levels of self-efficacy for self-regulated learning, an area very similar to academic self-efficacy, the researchers found that students' self-efficacy decreased from middle school to high school (Capara et al., 2008). These findings suggest that students' beliefs about their abilities begin to decline as they get older.

Positive Coping Strategies

Although many researchers have defined coping in different ways (Garcia, 2010), it is used to refer to the cognitive and behavioral strategies that individuals use to help them manage stress (Lazarus & Folkman, 1984). Sometimes individuals employ maladaptive coping strategies when encountering stressful experiences, particularly

avoidant strategies such as socially withdrawing, pretending the problem does not exist, or abusing illicit substances, which can result in negative consequences. On the other hand, the use of more positive coping strategies, such as seeking social support, problem solving, and positive cognitive restructuring, has been associated with positive outcomes, including higher levels of self-esteem and lower levels of depression (Ayers, 1991; Sandler, Tein, & West, 1994). Ayers (1991) proposed a four-dimensional model of coping, which comprises active coping, avoidance, distraction, and social support, in which active coping, distraction, and social support are considered to be more effective coping strategies than avoidance.

Numerous measures have been developed to capture the types of coping strategies employed by children and adolescents (Garcia, 2010). Some examples of commonly used measures include the Youth Coping Responses Inventory (CRI-Youth; Moos, 1993), the Adolescent Coping Scale (ACS; Frydenberg & Lewis, 1993), and the Coping Scale for Children and Youth (CSC-Y; Brodzinsky, Elias, Steiger, Simon, & Gill, 1992). Some measures, such as the Children's Coping Strategies Checklist (CCSC; Ayers, Sandler, West, & Roosa, 1996), assess youths' use of different coping strategies in response to stressors in general, whereas others, such as the How I Coped Under Pressure Scale (HICUPS; Ayers et al., 1996), look at how they cope with specific stressful events. The CCSC is a useful measure for a number of reasons. First, because it looks at coping strategies more broadly, it provides information about how children respond to stress in general, and not just specific areas of stress. Second, the CCSC is theoretically derived, based on Ayers' (1991) four dimensions of coping. In addition to providing information about children's use of the four aspects of coping, it also yields subscales providing more

detailed information about the specific strategies that children use in each of the four dimensions.

In contrast to many of the other mental health factors discussed here, in which adolescence poses an increased risk for problems relative to previous periods in life, research has shown that as children get older, they begin to utilize a broader range of coping strategies. Donaldson, Prinstein, Danovsky, and Spirito (2000) examined the coping strategies among a sample of 9-17 year old youth. Participants were classified into one of three groups based on their age. The researchers found that the early and middle adolescent participants, or those who were 14 years old or younger, used fewer coping strategies than the older adolescent participants. Specifically, the older adolescents reported using most of the coping strategies frequently, whereas many of the younger participants reported using much fewer. Other research has found similar results (e.g. Compas, Banez, Malcarne, & Worsham, 1991), though some studies have found coping techniques to be more stable (de Boo & Wicherts, 2009).

Gender Differences in Emotional Strengths

Given the increased risk for mental health problems for girls, an examination of gender differences among these protective factors is worthwhile. Research investigating the gender differences in levels of life satisfaction has yielded inconsistent findings. In the Goldbeck study, which used a sample of German students between the ages of 11 and 16 years old, girls reported significantly lower levels of life satisfaction than boys (Goldbeck et al., 2007). In contrast, results from other studies have found both genders to be equally satisfied with their lives (Dew & Huebner, 1994; Huebner et al., 2006; Marks

et al., 2004). Although the findings are somewhat mixed, a number of studies suggest that, despite girls' increased risk for internalizing symptoms, girls and boys tend to report similar levels of life satisfaction.

Studies examining the gender differences in self-efficacy have found some differences according to gender. In Muris's (2002) study, girls reported significantly lower total self-efficacy scores than boys. Bucchini and Magliulo (2003) examined whether there are gender differences across domains of self-efficacy in a sample of 675 middle and high school students from Italy. In this sample, girls reported lower levels of emotional self-efficacy and higher levels of academic self-efficacy than boys. Girls and boys in this study both reported comparable levels of social self-efficacy. However, another study found girls to have higher levels of social self-efficacy than boys (Coleman, 2003). In order to look at gender differences in academic self-efficacy more closely, a meta-analysis examined the effects from 187 studies (Huang, 2013). When looking across all studies, boys reported slightly higher levels of academic self-efficacy than girls, though the mean effect size was only .08. When reported levels of self-efficacy within specific subject areas were examined, effect sizes increased. Females reported higher levels of language arts self-efficacy than males, while males reported higher levels in mathematics, computers, and social sciences. No gender differences were detected in science self-efficacy. Although no gender differences in math self-efficacy were detected among the younger children, significant gender differences emerged among older students, suggesting that during adolescents, females' beliefs about their mathematical abilities decline whereas boys' stay the same or increase. Overall, these findings suggest that adolescent girls may need more support in identifying and appreciating their

academic skills than boys, but that the trends vary depending on the specific domain being measured.

Because of girls' increased risk for mental health problems during adolescence, an understanding of their use of coping strategies is essential. Research has shown that males and females cope with stressors in very different ways. Females are more likely to seek help from others, whereas males are more likely to find ways to distract themselves, (de Anda et al., 2006; Sung, Puskar, & Sereika, 2006). Though adolescent girls are particularly likely to employ maladaptive coping strategies such as rumination (Hampel & Petermann, 2005), some research has found that females are also more likely to employ adaptive coping strategies than males (e.g. de Anda et al., 2000), while other studies have found more similar frequencies across the two genders (e.g. Donaldson et al., 2000).

Emotional Strengths and Academic Performance

Within the past ten years, interest in how the study of strengths relate to and can be applied to the school setting has grown considerably. In 2003, *School Psychology Quarterly* published a special issue focusing on how positive psychology fits into the school context (Huebner & Gilman, 2003), and in 2004 *Psychology in the Schools* did the same thing (Chafouleas & Bray, 2004). Additionally, in 2009 the *Handbook of Positive Psychology in Schools* (Gilman, Huebner, & Furlong, 2009) was published. There has clearly been a growing interest in how positive psychology constructs and theories pertain to students in school. In order to better understand the impact of students' mental

health status on their academic performance, it is important to examine whether any of these strengths are related to student achievement.

Studies examining the relationship between life satisfaction and objective measures of academic performance, such as grades and test scores, have yielded inconsistent findings (Suldo, Riley, & Shaffer, 2006). Some studies have found a positive relationship between these two factors. For example, Cheng and Furnham (2002) found that among a sample of adolescent students from the UK, students' self-reported levels of happiness were correlated with their school grades. In another study examining high school students in the United States, there was a correlation between students' grades and reports on the SLSS (Suldo, Shaffer, & Riley, 2008). Other studies, however, have failed to produce similar results. In a study examining 79 5th-7th-grade students, Huebner (1991b) did not find a significant relationship between students' self-reported life satisfaction and their grades on their most recent report card.

Subjective perceptions of academic success tend to be more related to life satisfaction than objective measures. In one study, Huebner and colleagues (1999) found that students' life satisfaction was significantly correlated with their self-perceived school competence among a sample of 3rd-8th grade students. In another study, Suldo and Huebner (2006) compared reports of academic self-efficacy between students reporting extremely high levels of life satisfaction and extremely low levels of life satisfaction. They found that students reporting high life satisfaction reported significantly higher levels of academic self-efficacy than students reporting lower levels of life satisfaction. Despite the inconsistent relationship between life satisfaction and academic achievement,

these findings indicate that the relationship between life satisfaction and students' perceptions and beliefs about their academic performance is relatively stable.

Not surprisingly, students with more self-efficacy are more likely to succeed academically (Multon et al., 1991). These students are more likely to be willing to work harder and persist longer while doing a task than students with lower levels of self-efficacy (Bandura, 1997). A meta-analysis of 39 studies examining the relationship between self-efficacy and academic performance and persistence found effect sizes of .38 and .36, respectively, suggesting that self-efficacy beliefs were related to both areas (Multon et al., 1991). Student reports of self-efficacy for specific subjects have also been found to be predictive of student success within that subject, including science (Britner & Pajares, 2006), math (Pajares & Miller, 1994), and writing (Pajares & Valiante, 1999).

Finally, there is some evidence that employing effective coping strategies is associated with academic success. For example, in MacCann, Fogarty, Zeidner, and Roberts's (2011) study, there was a statistically significant relationship between middle school students' coping techniques and their GPA. In another study, college freshmen's use of coping strategies and their cumulative GPA (DeBerard, Spielmans, & Julka, 2012). Given the negative effect stress can have on academic performance previously discussed, the positive impact of coping is not surprising.

A Dual-Factor Model of Mental Health

There is clear evidence that emotional distress and emotional strengths both contribute to students' academic performance. A growing body of literature has begun to explore these two domains in combination. In 2001, Greenspoon and Saklofske proposed

a dual-factor model of mental health. This model integrates levels of psychopathology with levels of well-being, acknowledging that they are not simply opposite ends of a continuum, but rather two distinct constructs. The authors classified students into one of four mental health statuses based on how they presented across both constructs. Using this same model, Suldo and Shaffer (2008) examined whether group classification was related to differences in adjustment. Data were collected on 349 middle school students to identify which of the four groups students belonged to and whether the groups differed along three areas of adjustment – educational functioning, social functioning, and physical health. Results indicated that approximately half of the students reporting high levels of psychopathology also reported average to high levels of well-being. Although the groups differed across all three areas of adjustment, this discussion will focus on the results related with students' educational functioning. The two groups reporting high levels of psychopathology did not differ across educational outcomes, regardless of their reported levels of well-being. These findings suggest that, among students reporting emotional distress, SWB does not protect against poor outcomes. In contrast, reports of well-being differentiated the two groups of students reporting low psychopathology. Among the symptom-free students, those reporting higher levels of well-being (the complete mental health group) received higher scores on a standardized reading test and better attendance than students reporting lower levels of well-being. The results from this study demonstrate the importance of focusing on both positive and negative factors of mental health. Although students reporting mental health problems are commonly considered to be at-risk for academic difficulties, this study provides evidence that students reporting low levels of well-being may also be at increased risk.

This study was replicated by Antaramian, Huebner, Hills and Valois (2010) with a sample of 764 middle school students. Similar to the above study, students who reported high levels of psychopathology did not differ in achievement, regardless of their reported levels of well-being. However, students in the complete mental health group received higher GPAs and reported higher levels of academic engagement than the other students in the sample. Again, these findings highlight the importance of considering students' mental health across both domains, as students' reports of well-being significantly contributed to their academic outcomes.

Another study examined whether students' classification within the dual-factor model of mental health was predictive of future academic achievement one year later (Suldo, Thalji, & Ferron, 2011). Three hundred middle school students were classified into one of the four mental health groups. Indicators of academic achievement and school behavior were gathered at the beginning and end of the study to determine if particular group membership was associated with academic functioning one year later. Students in the complete mental health group had higher GPAs and experienced greater stability in GPA and attendance than students in the other groups. These findings suggest that mental health status is not only related to current educational functioning, but it is also related to future educational functioning. However, a majority of the current research has focused primarily on SWB as the index of positive strengths, neglecting other strengths such as self-efficacy and coping strategies.

The Treatment of Emotional Distress in Schools

Because of the relationship between emotional distress and academic performance, it is essential that schools invest in these issues. While schools do not frequently provide supports to promote students' development of well-being and other strengths (e.g. Seligman, Ernst, Gillham, Reivich, & Linkins, 2009), they do serve as a major mental health service provider to students experiencing social, emotional, and behavioral issues. Schools offer an ideal setting to provide mental health services for a number of reasons. First, school-based services eliminate many of the common barriers to treatment (Atkins, Frazier, Adil, & Talbott, 2003). Some of the obstacles for parents associated with traditional outpatient services include having to navigate the intake process, negotiating with insurance companies to pay for services, and missing work to bring a child to therapy. In addition to these hassles, many families may fear the stigma commonly associated with receiving mental health services. All of these reasons can cause families to reject traditional mental health services. In fact research shows that approximately 80% of children in need of mental health services do not receive these services (Kataoka, Zhang, & Wells, 2002). Of those who do receive services, a significant number of families drop out of treatment prematurely (Gopalan, Goldstein, Klingenstein, Sicher, Blake, & McKay, 2010; Miller, Southam-Gerow, & Allin, 2008), with rates being particularly high among urban families (McKay, Lynn, & Bannon, 2005).

Many of these barriers are removed when services are provided within the school context. Furthermore, school-based services provide additional benefits that are unique to schools. School personnel often know students in a different capacity than an outside

mental health worker, giving them additional insight into a student's level of functioning (Creed, Reisweber, & Beck, 2011). A student's familiarity with his or her school and its faculty can also increase the child's comfort with treatment.

As a result of federal initiatives introduced in the early 21st century (President's New Freedom Commission on Mental Health, 2003; U.S. Department of Health and Human Services, 1999b; U.S. Public Health Service, 2000), there has been a growing movement towards the implementation of school-based mental health services. These services can be conceptualized using a public health framework. At the lowest tier (tier one) are universal supports. Tier one supports may be provided at the class-, school-, or even district-wide level. Examples of services at this level include Positive Behavior Intervention & Support (PBIS; Sugai et al., 2000), a school-wide program that is designed to improve school discipline practices by focusing on teaching students appropriate prosocial behaviors. Another initiative is the Promotive Alternative Think Strategies (PATHS; Greenberg, Kusche, Cook, & Quamma, 1995), which is a class-wide intervention designed to teach students how to understand and regulate their emotions. At the second level (tier two), students who are at-risk for mental health problems, either due to elevated levels of symptoms or environmental or biological risk factors, are provided with services to help reduce their risk of developing further distress in the future. The focus of supports at these first two levels is on preventing problems from occurring, either by promoting certain foundational skills or intervening before significant problems arise. In contrast, tier three mental health supports can be thought of as treatment services. At this level, students are offered more intensive interventions, which typically

consist of one-on-one therapeutic services that are tailored to match students' unique strengths and needs.

Academic Benefits of School-Based Mental Health Services

Although there is a large body of research demonstrating the relationship between students' mental health problems and their academic performance, only a few studies have examined whether school-based mental health interventions are effective in promoting academic success. Hoagwood and colleagues (2007) reviewed the literature on school-based interventions that focused on mental health and academic outcomes and concluded that significantly more work is needed in this area. Articles were included that met the following criteria: (1) used a longitudinal or prospective design, (2) used random assignment or a quasi-experimental design, (3) was published between 1990 and 2006, and (4) evaluated a school-based intervention. The researchers found 64 articles that met their inclusionary criteria. Of the 64 articles that they focused on, only 24 examined both mental health and academic outcomes. Fifteen of these studies found that the intervention produced positive outcomes in both areas, suggesting that school-based mental health interventions may be effective in providing students with academic benefits. However, this study also highlights a large gap in the research on school-based mental health services.

Another concerning area is the deficiency of studies that examine the relationship of school-based mental health interventions on adolescents. Given their increased vulnerability for mental health problems, there is a great need for research to examine whether interventions intending to reduce or prevent distress can also provide academic

benefits. Of the 24 studies identified by Hoagwood and colleagues (2007), most of them focused on elementary school students. Six of the studies focused on middle school students and only two focused on high school students. Although some of these studies did identify improvements in areas related to academic functioning, such as classroom and school climate (Gottfredson, Gottfredson, & Hybl, 1993), and ratings of school competency (Klein, 2004), fewer gains were found when more objective measures of academic functioning, such as students' grades, were analyzed. For example, Hains and Ellmann (1994) examined the effects of a school-based prevention program designed to reduce stress in high school students. Although the researchers found significant reductions in students' self-reported levels of anxiety, depression, and anger after completion of the program and at a two-month follow-up period, they did not find significant improvements in participants' GPA or school attendance. In another study, Kiselica and colleagues examined the effects of a stress inoculation intervention for 9th grade school students (Kiselica, Baker, Thomas, & Reedy, 1994). Students were randomly assigned to a stress inoculation program that focused on relaxation, cognitive restructuring, and assertiveness training. Students in the intervention group reported significantly greater improvements in trait anxiety and stress-related symptoms than students in the control group. However, GPAs did not differ across the two groups.

Despite the lack of support for academic improvements in many of these studies, other studies, particularly those focusing on younger students, have found a relationship between participation in school-based mental health interventions and improved academic functioning. The results from these studies indicate that there is some empirical support for the impact of school-based mental health interventions on students' academic

performance. In fact, 15 of the studies identified by Hoagwood and colleagues (2007) found improvements in students' academic functioning. However, nine of the studies that examined academic outcomes did not identify any academic benefits to intervention participation. A much larger number of studies did not examine academic outcomes. Given the paucity of research in this area and inconsistent findings among the few studies that have examined this area, there is clearly a great need for more research examining these effects.

In a meta-analysis examining the effects of school-based universal interventions focusing on enhancing students' social and emotional learning, Durlak and colleagues (2011) found that such programs can provide significant benefits to participants. Specifically, the researchers found that participation was associated with increased levels of social and emotional skills, including conflict resolution, goal setting, and decision making, more positive evaluations of themselves, lower levels of emotional distress, and improved academic performance. With regard to the academic benefits, the researchers found that participation in social and emotional learning programs was associated with an 11-percentile gain in performance. This research contributes to the body of literature examining the academic effects of school-based interventions focusing on students' social and emotional health and well-being.

Measurement of Academic Performance

One of the most commonly measured outcomes associated with academic performance are students' grades. Students' grades are intended to communicate the degree of individual student mastery of curricular materials (Cizek, 1996). Whereas elementary school teachers often use more informal methods for grading their students,

teachers at the secondary level are more likely to use results from in-class activities or quizzes and exams to determine a student's grade (Brookhart, 1994). In a literature review analyzing 19 studies examining teachers' grading practices, Brookhart (1994) concluded that in addition to students' academic achievement, their grades may also reflect other aspects of school performance, including effort, improvement, attendance, and classroom behavior. Similarly, Duckworth, Quinn, and Tsukayama (2012) found that students' level of self-control was better able to predict changes in students' grades than could their IQ scores. This finding suggests that other factors, including students' ability to complete assignments and focus in class, in addition to their skills go into their grades.

Although grades provide a lot of useful information about how a student is perceived to be functioning in school, they also have their limitations when used to track student progress. Cizek (1996) and Allen (2005) argue that because so few teachers are trained in assessment or grading practices, many teachers are inappropriately using subjective ways to assign grades to students that are neither valid nor reliable. Therefore, changes across an academic year may reflect other factors than simply changes in academic performance. Similarly, given the degree of variance across teachers' grading practices (Brookhart, 1994), changes in grades across different years may reflect variation across teachers more so than an improvement or decline in academic performance. Finally, Brookhart (1994) argues that a student's grades are often confounded by his or her level of effort. Grades are therefore not a "pure" measure of student achievement and should not be treated as something other than what they are.

Another method for measuring students' performance is by examining their performance on measures of academic achievement. Two commonly used standardized

measures of individual academic performance are published norm-referenced achievement tests and criterion-referenced tests such as the end of the year state-wide high stakes tests mandated by *No Child Left Behind*. Norm-referenced tests allow for direct comparison of a student's responses across different academic areas with a normative sample of same-age/same-grade peers. Therefore, scores on norm-referenced tests reflect a student's relative standing. Criterion-referenced tests, in contrast, measure whether a student has mastery of a skill or group of skills. Scores mark the degree to which a student has mastered the skill rather than serving as a comparison to peers.

While scores on norm-referenced and criterion-referenced standardized tests can provide some useful information regarding the degree to which a student is behaving as is expected for his or her age or has acquired certain academic skills, they are not optimal for tracking student progress over time or as a result of intervention. Shapiro (2004) cites a number of weaknesses to both of these assessment procedures. First, there is often poor curriculum-test overlap between standardized measures of academic achievement and what students are learning on a daily basis in their classrooms. As a result, poor performance on a test may indicate that a student has not been taught the content of the test rather than his or her failure to acquire skills taught in school. Furthermore, because of the poor curriculum-test overlap, these tests are not sensitive enough to detect small changes in student performance. In order to cover a variety of different skills, test creators had to be selective in the skills that are assessed in each subtest. Thus, a student who has made significant academic gains in the classroom may not show marked improvements on a standardized test because there may be few items that reflect the recently acquired skills. Additionally, a number of studies have found students to obtain

significantly different scores across different tests, suggesting that they have poor content validity (e.g. Bell, Lentz, & Graden, 1992; Good & Salvia, 1988; Shriner & Salvia, 1988). Finally, standardized achievement measures are not ideal for monitoring student progress because most instruments should not repeatedly be administered. This is particularly true for norm-referenced achievement measures, where repeated use poses a risk to test validity due to potential practice effects.

Curriculum-based assessments (CBA) provide an alternative to these methods of tracking student progress (see Shapiro, 2004 for a review). CBA is a more direct evaluation of academic skills that are taught to students in school. Using grade-level curricular materials, CBAs are able to assess students' mastery on grade-level content. They are also sensitive to small levels of improvement and may be administered repeatedly, making them an ideal tool for monitoring student progress over time. CBAs are traditionally used for identification and progress monitoring in school-wide programs, such as Response to Intervention (RTI). In this model, academic measures are administered to the entire study body as an academic screener to identify students at-risk for academic failure. These students are then provided with evidence-based academic interventions that focus on the specific skills where they struggle. In order to determine whether interventions are effective for particular students, CBAs are used to track student progress over brief periods of time, usually on a weekly basis. Although previous work has not yet utilized CBA data as an outcome measure for mental health interventions, their sensitivity in detecting small academic gains over brief periods of time as well as their relatively brief administration time make them particularly suitable for intervention studies.

Prevention Programs

School-based prevention interventions offer an alternative approach to the standard mental health service delivery model where youth already demonstrating high levels of distress seek treatment. Instead, prevention programs provide students with services before they exhibit these high levels of distress. The Institute of Medicine has classified prevention interventions into three different categories – universal, selective, and indicated (Mrazek & Haggerty, 1994). Universal prevention interventions offer programs to all members of the general population, regardless of risk level. Universal interventions are synonymous with tier one levels of support. In schools, this could include an entire class, school, or district. Universal interventions may also be offered as an extracurricular activity, but the defining feature is that involvement is not dependent upon identified risk. In contrast, services at the other two levels of support (selective and indicated) identify specific students to participate. Selective prevention interventions are offered only to members of the population who are identified as being at increased risk, due to biological or environmental vulnerability. These tier two supports are designed to reduce their risk for developing clinical disorders in the future. Finally, indicated preventative interventions are offered to individuals exhibiting subclinical symptoms of a condition or disorder. Because of their elevated levels of symptoms, these individuals are considered to be at increased risk for developing a clinical disorder. Often selective and indicated prevention interventions are grouped together and referred to as targeted preventative interventions, indicating that they are offered to specific individuals who are at-risk. Though there is some empirical support for both universal and targeted prevention programs, meta-analytic reviews suggest that targeted programs tend to be

more efficacious than universal programs (Horowitz & Garber, 2006; Stice et al., 2009). This study will examine the effects of a targeted prevention intervention program designed for early adolescent girls, a population identified as having elevated risk for mental health problems.

There are a number of benefits to offering prevention programs in schools. First, if students' mental health problems are addressed prior to reaching clinical levels, then these problems can be more easily resolved. Second, by focusing on areas that are likely to result in future issues, schools are able to prevent the subsequent academic, social, and behavioral difficulties that are often associated with mental health problems in school-aged youth. Finally, by offering services to a larger number of students, the stigma associated with receiving mental health services is reduced. This is especially true for universal prevention programs. Research has examined school-based prevention interventions that have focused on a variety of issues, including depression (Horowitz & Garber, 2006; Stice et al., 2009), anxiety (Fisak, Richard, & Mann, 2011), suicide (Mazza, 1997), aggression (Wilson, Lipsey, & Derzon, 2003), and problem behaviors (Wilson, Gottfredson, & Najaka, 2001). All have shown promise within this setting, but have not all examined secondary academic effects of the interventions for participating students.

Depression Prevention

Although adolescence marks a period of increased vulnerability for many mental health problems, depression is one of the most common psychiatric problems that adolescents face. Because of this, there is a large body of literature supporting the utility

of school-based depression prevention programs for children and adolescents. In fact, Stice and colleagues (2009) identified 32 depression prevention programs with research that has been published. Most of the interventions included in this review focused on cognitive-behavioral techniques, behavioral skill training, social problem solving, and psychoeducation. Forty-one percent (n=13) of these programs were found to have significantly reduced participants' levels of depressive symptoms, while 13% (n=4) significantly reduced participants' risk for future onset of depression. Gillham and colleagues (2000) differentiate between these two types of results, with the former being more appropriately classified as treatment, and the latter as prevention.

Through meta-analytic review, Stice and colleagues (2009) have identified a number of specific factors that predict intervention effects. The moderators identified in this study have been outlined in Table 1. As can be seen, factors related to participants as well as the intervention itself have been found to predict intervention effects.

Table 2.1
Moderators Associated with Program Effectiveness

Domain	Moderator	Impact on Effect Size
Participant features	Risk status of participants	Larger effect sizes for targeted interventions relative to universal interventions
	Participant gender	Larger effect sizes for interventions with a high percentage of females relative to interventions with a low percentage of females
	Participant ethnicity	Larger effect sizes in studies with a high percentage of participants from ethnic minority backgrounds relative to studies with a high percentage of Caucasian participants
	Participant age	Larger effect sizes in studies with older adolescents relative to younger adolescents
Intervention features	Intervention duration	Larger effect sizes for interventions that were shorter than those that were longer
	Homework	Larger effect sizes for interventions that assigned homework relative to those that did not

Note. This table is based on the findings from a meta-analysis from “A Meta-Analytic Review of Depression Prevention Programs for Children and Adolescents: Factors That Predict Magnitude of Intervention Effects,” by E. Stice, H. Shaw, C. Bohon, C. N. Marti and P. Rohde, 2009, *Journal of Consulting and Clinical Psychology*, 77, p. 486-503.

For the purposes of this study, (1) risk status of participants, (2) participant gender, (3) intervention duration, and (4) homework are the most relevant moderators. First, targeted interventions produce larger effect sizes than universal programs (Horowitz & Garber, 2006; Stice et al., 2009). There are many possible explanations for this, including the possibility that students with higher levels of distress are more motivated to engage in and benefit from the intervention. Youth with elevated levels of depression are also more likely to demonstrate intervention effects because there is greater room for effects to be measured. Initially symptomatic youth are better able to demonstrate treatment effects or reductions in symptoms as a result of participation than their non-symptomatic peers who have very little room to demonstrate improvements. Additionally, interventions offered to higher risk youth are more likely to demonstrate

prevention effects. Because symptomatic youth are at greater risk for developing increased symptoms, interventions that target these students are more likely to exhibit prevention effects, or a reduction in the expected increase in symptoms over time (Gillham et al., 2000).

Second, both studies found gender to moderate intervention effects. Specifically, groups that had a larger percentage of females demonstrated greater effects than those with fewer girls (Horowitz & Garber, 2006; Stice et al., 2009). This topic will be discussed in greater detail below, but it is worth noting that because girls are at an increased risk for depression, it is likely that this contributed to the programs' effectiveness. Third, Stice and colleagues (2009) found that shorter interventions (less than 12 hours) produced larger effect sizes than longer interventions (12 hours or more). An explanation by the authors for this unexpected finding was that longer interventions are more likely to result in greater attrition than shorter interventions. Finally, Stice and colleagues (2009) also found that interventions that assigned homework produced larger effect sizes than those that did not assign homework. These findings suggest that overall, depression prevention programs are effective at reducing and preventing symptoms of depression.

Cognitive-Behavioral Prevention Programs

A majority of the depression prevention programs focus on teaching students cognitive-behavioral skills to help them identify the link between their thoughts and feelings and to develop effective coping strategies. Early studies examining the effects of cognitive-behavioral depression prevention programs for adolescents found inconsistent

findings. Clarke and colleagues were the first researchers to publish a study examining these types of interventions (Clarke, Hawkins, Murphy, & Sheeber, 1993). In their initial article, the authors presented the results from two studies examining the effects of a universal depression prevention program that was offered to 9th and 10th grade students incorporated into their health class. In the first study, students were randomly assigned to participate in a brief (three 50-minute sessions) intervention that mostly focused on psychoeducation. Although there were short-term intervention effects for participants at post-treatment, effects were not maintained at a 12-week follow-up period. The authors concluded that a more intensive intervention that focuses on cognitive skill training might be more beneficial than the brief intervention they had provided.

In their second study, Clarke and colleagues extended the length of their intervention (five 50-minute sessions) and incorporated behavioral components to the intervention such as guided meditation and focusing on pleasant experiences (Clarke et al., 1993). However, this study also failed to produce significant effects on students' depressive symptoms.

Shortly after these studies were published, the same research team examined the effects of a more comprehensive group cognitive-based depression prevention program for 9th and 10th grade students with elevated symptoms of depression (Clarke et al., 1995). In this study, students were randomly assigned to a 15-session cognitive-behavioral intervention or a "treatment as usual" control group. Both groups were followed-up at the end of treatment, and after six and twelve-months of follow-up. The researchers found that students participating in the intervention were half as likely to have depressive disorder at a 12-month follow-up period than those in a control group.

Overall, these findings support the use of a group cognitive-behavioral depression intervention to prevent the risk of depression in students exhibiting depressive symptoms.

The previous studies have examined the effectiveness of group cognitive-behavioral depression prevention interventions for high school students. As discussed earlier in this dissertation, youths' risk for depression increases drastically during the course of adolescence (Hankin et al., 1998; Saluja et al., 2004). Because of this, it is essential that prevention programs focus on reducing the risk of depression before this increase. During the same period that Clarke and his research team were examining preventative interventions for high school students, two additional research teams began focusing on programs targeting young adolescents. One team developed the Penn Optimism Program (Gillham, Jaycox, Reivich, Seligman, & Silver, 1990), which later was renamed to the Penn Resiliency Program (PRP). This program is discussed in greater detail below. The other research team developed a school-based intervention targeting 7th grade students at increased risk for mental health problems (Petersen, Leffert, Graham, Alwin, & Ding, 1997). Students were randomly assigned to the intervention condition or a control group. Students in the intervention group were taught effective coping and problem-solving strategies through a cognitive-behavioral framework. Results indicated that the program provided short-term benefits to participants. Students in the intervention group demonstrated increased coping strategies and decreased levels of internalizing and externalizing behaviors relative to students in the control group. The intervention was also effective in reducing depressive symptoms in the girls, but not boys, who participated in the intervention. However, no effects were detected at follow-up. The findings from these initial school-based efforts to prevent depressive symptoms in

adolescents yielded rather inconsistent findings. Despite this, however, these researchers paved the way for others to further investigate the utility of cognitive-behavioral approaches in the prevention of adolescent depression.

Since these initial studies of cognitive-behavioral depression prevention programs, a number of other researchers have followed this trend of study (e.g. Merry, McDowell, Wild, Bir, & Cunliffe, 2004; Stice, Burton, & Bearman, 2007). While many of the interventions that are reviewed in these studies have been found to be effective (e.g. Gillham, Reivich, Freres et al., 2006; Stice, Rohde, Seeley, & Gau, 2008), others have been less successful (e.g. Roberts, Kane, Thomson, Bishop, & Hart, 2003; Sheffield et al., 2006). Overall, however, there appears to be fairly strong empirical support for the use of cognitive-behavioral depression prevention interventions, particularly when offered to a selective sample of students at increased risk.

The Penn Resiliency Program

The Penn Resiliency Program (PRP; Gillham, Reivich, & Jaycox, 2008) is a school-based universal prevention program designed to promote resiliency and prevent the onset of depressive symptoms. The program follows a cognitive-behavioral framework for depression (Beck, 1976; Ellis, 1962; Seligman, 1991). In contrast to Clarke and colleagues' work, which focuses on high school students' depressive symptoms (Clarke et al. 1993; 1995), PRP focuses on preventing depression in early adolescence. The PRP curriculum comprises twelve 90- to 120-minute sessions that are split into two units. The first unit focuses on teaching students cognitive skills. Students are taught to identify the link between their thoughts and their feelings. They are also

taught to recognize maladaptive thinking patterns, restructure pessimistic thoughts, and develop more positive ways of thinking. The second unit focuses on problem-solving skills. In this unit, students learn ways to work through interpersonal problems and cope with strong emotions.

The PRP curriculum is one of the most widely researched school-based prevention programs (Gillham, Brunwasser, & Freres, 2008), with over 30 published articles and unpublished dissertations examining its effectiveness. Throughout the program's history, it has gone by several different names, including the Penn Optimism Program and the Penn Prevention Program. Because these interventions share many common features and were all developed by the same research team, this dissertation will include all of these interventions under the umbrella of the Penn Resiliency Program.

In the initial evaluation of PRP, the researchers found intervention effects continuing through a three-year follow-up period (Gillham & Reivich, 1999; Gillham, Reivich, Jaycox, & Seligman, 1995; Jaycox, Reivich, Gillham, & Seligman, 1994). This study targeted at-risk students from two suburban school districts. All 5th and 6th grade students who provided parental consent were screened using a depression scale and a measure assessing their perceptions of marital conflict. Students with the highest scores on these two measures were invited to participate in the study. Students from both school districts were asked to fill out a battery of self-report questionnaires measuring their levels of depressive symptoms and their explanatory style. Parents also completed a checklist measuring their child's behavior at home and teachers reported on students' classroom behavior. After collecting baseline data, students from one school district were broken into smaller groups to participate in PRP as an afterschool program. Students

from the other school district did not participate in the program. All students participating in the study filled out the questionnaire packets at the completion of the program and every six-months for a three-year follow-up period. Participation in the program was associated with reductions in depressive symptoms as well as preventative effects, such that students who participated in the program were less likely than students in the control group to report depressive symptoms two years later. Additionally, participants of the program were half as likely as students in the control group to report elevated depressive symptoms. Intervention effects increased with time during the first two years of follow-up. However, at the three-year follow-up, participation was only associated with improvements in explanatory style, but not depressive symptoms.

Since this first study, many additional studies have been conducted evaluating the effects of the PRP curriculum. Most of these studies have addressed the weakness of the initial study by using a randomized-controlled design. While most of the research has focused on students in the United States, its effectiveness in other countries, including Australia (Pattison & Lynd-Stevenson, 2001; Quayle, Dzurawiec, Roberts, Kane, & Ebsworthy, 2001; Roberts, Kane, Bishop, Matthews, & Thomson, 2004; Roberts, Kane, Thomson, Bishop, & Hart, 2003), the Netherlands (Tak et al., 2012), England (Challen, Machin, & Gillham, 2013), and China (Yu & Seligman, 2002), has also been explored. It has also been studied in suburban (e.g. Cutuli, Chaplin, Gillham Reivich, & Seligman, 2006; Gillham, Reivich, Freres et al., 2006; Gillham et al., 2012) and urban settings (Cardemil, Reivich, & Seligman, 2002; Cardemil, Reivich, Beevers, Seligman, & James, 2007). Because PRP was developed as a school-based program for early adolescent students, most studies have focused on the program's effectiveness within the school

setting (e.g. Gillham et al., 2007; Gillham, Reivich, Freres et al., 2006; Jaycox et al., 1994). The program has typically been offered as an afterschool program; however, in select studies it was offered during the school day (Cardemil, Reivich, & Seligman, 2002) or on weekends (Yu & Seligman, 2002). Some studies have also explored the program's utility in other delivery settings, including primary care facilities (Gillham, Hamilton, Freres, Patton, & Gallop, 2006) and a juvenile detention center (Miller, 1999; as cited in Brunwasser, Gillham, & Kim, 2009; Tellier, 1998, as cited in Brunwasser, Gillham, & Kim, 2009).

Given PRP's focus on preventing depression, it is not surprising that the most commonly measured outcome associated with participation has been depressive symptoms. While Clarke and colleagues (1995) concentrated the prevention of depressive disorder, most researchers evaluating PRP have focused on the prevention of depressive symptoms more specifically. Despite some inconsistent findings, the majority of studies using randomized control designs have found the program to be effective in reducing levels of depression, particularly in students exhibiting elevated levels of symptoms at baseline (Brunwasser, Gillham, & Kim, 2009; Jaycox et al., 1994). Additionally, there is some evidence of the program having a preventative nature, in that it has been shown to prevent the development of depressive symptoms as adolescents' risk increases (Gillham et al., 1995; Quayle et al., 2001).

Research has also found participation in PRP to be associated with a number of other positive outcomes. Students who have participated in the program have been found to report lower levels of hopelessness (Cardemil et al., 2007; Gillham et al., 2012), negative automatic thoughts (Cardemil et al., 2007), and anxiety (Gillham, Reivich,

Freres et al., 2006; Gillham et al., 2012; Roberts et al., 2003) than students who did not participate in the program. Parent and teacher reports indicate that students enrolled in PRP also have fewer conduct problems (Cutuli, Chaplin, Gillham, Reivich, & Seligman, 2006; Roberts et al., 2003) and behavior problems at school (Jaycox et al., 1994) compared to students in the control group. Participation has also been associated with increases in a number of protective factors, including self-esteem (Cardemil, Reivich, & Seligman, 2002), optimistic explanatory style (Gillham, Hamilton, et al., 2006; Gillham et al., 1995; Jaycox et al., 1994; Roberts et al., 2003; Yu & Seligman, 2002), and self-control (Quayle et al., 2001). These findings indicate that in addition to providing relief from and preventing depressive symptoms, participation in PRP is also associated with a number of secondary outcomes.

Some studies have found PRP to be effective in reducing depressive symptoms when delivered universally to all students interested in participating (e.g. Gillham et al., 2007). However, a greater body of literature has examined the program's effects when it is offered to a targeted sample of students considered to be at increased risk. For example, in a number of studies, students were screened for depressive symptoms before study enrollment. In these studies, the students exhibiting elevated levels of depression were given priority to participate in the study, and other students were invited if there were spaces remaining (e.g. Jaycox et al., 1994; Roberts et al., 2003). Though not significant, a meta-analysis including 17 studies of PRP reported larger effects when the program was offered to a targeted sample than to a universal sample of students (Brunwasser, Gillham, & Kim, 2009). This is consistent with results from other meta-analytic studies that have found targeted depression prevention programs to be more

effective in reducing depressive symptoms than those offered universally (Horowitz & Garber, 2006; Stice et al., 2009).

Preventative Interventions for Girls

Given the increased rates for mental health problems among girls, it is important to consider the effectiveness of preventative interventions among this targeted population. Furthermore, girls may be less likely to be referred for mental health services than boys (Green, Clopton, & Pope, 1996). Rates of externalizing behavior problems tend to be higher in boys whereas internalizing problems are higher in girls (Crick & Zahn-Waxler, 2003). Because externalized behaviors are more disruptive for parents and teachers, boys with externalizing problems are more likely to be referred for mental health services than girls. Therefore, it is essential that school-based preventative services that are effective for adolescent girls be identified to address this gap in service delivery.

Some of the depression prevention programs that were previously discussed have examined gender differences in program outcomes. However, for the most part, the results have been inconclusive across different studies. Some studies have not found any gender differences (e.g. Cardemil et al., 2007; Pattison & Lynd-Stevenson, 2001). Others have found there to be different effects for girls and boys. In Petersen and colleagues' (1997) study described above, which examined the effects of a school-based intervention for 7th grade students, the researchers came across a very surprising finding. Although the female participants benefited from participation in the intervention, male participants appeared to do somewhat worse. In fact, while girls in the intervention group reported decreases in depressive symptoms relative to those in the control group post-intervention,

boys in the intervention group reported increases. In another study examining the effects of a cognitive-behavioral-based prevention program designed for undergraduate students, gender moderated intervention effects (Seligman, Schulman, DeRubeis, & Hollon, 1999). Participation in the intervention was associated with the prevention of depressive episodes in females but not males. Finally, meta-analytic reviews have found stronger effects for studies with high percentages of female participants than those with lower percentages of females (Horowitz & Garber, 2006; Stice et al., 2009).

The results from these studies suggest that girls might get more out of the groups than do boys. Previous research has found that interventions that target students at increased risk have been found to be more effective than those offered at a universal level (Stice et al., 2009). Because of girls' increased risk for mental health problems, and depression in particular, it is likely that the increased effects observed in these studies are a result of girls' responding positively to the programs.

However, not all intervention results have aligned with this theory. Specifically, the research on PRP in particular has yielded inconsistent findings. While one study found that the program reduced and prevented levels of depression in girls but not boys (Gillham, Hamilton, et al., 2006), two other studies – both unpublished doctoral dissertations – found the opposite to be true (Reivich, 1996, as cited in Gillham et al., 2008; Shatté, 1997, as cited in Gillham et al., 2008).

Given these conflicting results, there is reason to examine the effects of participation for girls enrolled in all-girl intervention groups. Additionally, because girls experience different stressors and challenges than boys, girls may have different areas they wish to discuss, which they may feel uncomfortable sharing in a co-ed setting. For

the most part, research supports the utility of interventions in a single sex format. For example, one study examined the effectiveness of PRP when implemented in an Australian private school for girls (Quayle et al., 2001). Participants were randomly assigned to participate in the intervention or in a wait-list control group. Both groups were followed for six-months post-intervention. The researchers found that girls in the intervention group reported decreases in depressive symptoms after six months whereas those in the control group reported increases. Additionally, participation was associated with higher levels of self-worth. The results from this study suggest that the program was effective when delivered in an all-girls format.

While the results from Quayle and colleagues' (2001) study are promising, the study does not provide information on whether the all-girls' format was superior to a co-ed format. To fill this gap in the research, Chaplin and colleagues (2006) conducted a study comparing the effects of a co-ed PRP group, an all-girls PRP group, and a control group. Students were randomly assigned to one of the three groups and followed for 12-months post-intervention. Although students from both intervention groups reported similar decreases in depressive symptoms, girls in the all-girls group had better attendance and lower levels of hopelessness than girls in the co-ed group. The researchers hypothesized that the all-girls group was associated with better outcomes because the all-girls group format made them feel comfortable sharing personal experiences and the group helped facilitate stronger group cohesion.

While there is evidence that prevention programs may be particularly beneficial to girls when offered in a single sex format, there is limited research examining specific programs developed for girls. LeCroy (2004) examined the effects of a gender targeted

developmentally based prevention program for adolescent girls. Seventh grade girls were randomly assigned to one of two conditions – the Go Grrrls prevention program or a control group. The Go Grrrls program is a broad based intervention designed to promote healthy development. It focuses on various tasks, such as helping girls develop a competent gender role identity, establish a positive self-image, build positive peer relationships, and utilize effective coping strategies. Relative to girls in the control group, girls who participated in the program reported greater increases in body image, assertiveness, attractiveness, self-efficacy, self-liking and competence.

In another study, a research team evaluated the effectiveness of the Girls' Circle, an intervention based upon relational-cultural theory (Steese et al., 2006). The relational-cultural theory views social connections as a central focus of girls' psychological well-being (Miller, 1991). The program aims to promote resiliency by helping increase protective factors in girls by focusing on topics such as friendships, self-image, body-image, relationships, assertiveness, and self-talk. The researchers found participation to be associated with increases in body image, perceived social support, and self-efficacy at the end of the ten-week program. Participants did not report significant increases in self-esteem or locus of control. Overall, these findings suggest that the Girls' Circle may be an effective program. However, there are methodological flaws in this study that need to be addressed. First, the researchers did not include a control group as a means of comparison. It is therefore possible that the increases in the areas measured may have resulted naturally through the passage of time and not as a result of group participation. Furthermore, while the data suggest that participants' protective factors improved after

participating in the Girls' Circle program, areas of distress were not measured. It is unknown whether the program also had other preventative outcomes.

The results from these studies suggest that prevention programs focusing on girls' well-being can be useful in promoting positive outcomes. However, only one of the programs was school-based and none of them utilized a cognitive-behavioral framework or focused on specific mental health concerns. It is evident from these studies that much more research in this area is needed. Currently two research teams are working on adapting cognitive-behavioral prevention programs to be more appropriate for an all-girls format. Wolfe, Dozois, Fisman, and DePace (2008) published an article discussing the adaptations they made to the Resourceful Adolescent Program (RAP; Shochet et al., 2001) to make it better accessible to female participants. Specifically, they place greater emphasis on issues related to friendships, romance, and sexual pressures. Gillham and colleagues are currently evaluating the effectiveness of a modified version of the Penn Resiliency Program that has been adapted for early adolescent girls (Gillham, Chaplin, Reivich, & Hamilton, 2008). The Girls in Transition (GT; Gillham, Reivich, Darlow, Stoner, & Chaplin, 2006) program follows the same format as PRP, with the addition of topics that are more relevant for girls, such as rumination, body image concerns, media messages, and identifying positive female role models. These findings, in combination with the positive results obtained from studies utilizing a selective approach, suggest that depression prevention groups targeting early adolescent girls may be especially beneficial. However, a considerable amount of work is still needed in this area to determine whether cognitive-behavioral prevention programs are effective in improving the mental health of adolescent girls.

Current Study

The current study has two aims. First, it seeks to explore the relationship between three areas of functioning – emotional distress, emotional strengths, and academic performance – in a normative sample of early adolescent girls. Using a global mental health framework, students’ reported levels of emotional distress (anxiety, depression, hopelessness, and body image concerns) and their levels of emotional strengths (life satisfaction, self-efficacy, and adaptive coping strategies) were examined to determine whether any of these factors, alone or in combination, were correlated with measures of academic functioning. Objective and subjective measures of academic performance were included as dependent variables. Curriculum-based assessments of reading comprehension and math computation were used as indices of students’ objective academic performance, while students’ reports of their levels of academic self-efficacy and effectiveness were used as a subjective measure of academic functioning. It was hypothesized that emotional distress (anxiety, depression, hopelessness, and body image concerns) would be negatively correlated with measures of academic performance and beliefs, whereas emotional strengths (life satisfaction, self-efficacy, and adaptive coping strategies) would be positively correlated.

The second goal of this study is to report preliminary findings from the Girls in Transition (GT) program, an adapted version of PRP depression prevention program designed for early adolescent girls. Although some research has begun to explore the utility of gender-specific prevention programs, no published studies have focused specifically on the prevention of depression through cognitive-behavioral techniques among a normative sample of early adolescent girls. Given the efficacious results from

studies examining PRP, it is hypothesized that girls who participate in the GT program will report lower levels of emotional distress (anxiety, depression, hopelessness, and body image concerns) and higher levels of emotional strengths (life satisfaction, self-efficacy, and adaptive coping strategies) than students from a wait-list control group. Finally, this study will examine whether there are additional academic benefits for girls who participate in the GT program. Although research has focused on the link between students' mental health and academic performance, no studies have examined the academic correlates of this universal depression prevention program. It is hypothesized that students who participate in the program will score higher on objective and subjective measures of academic performance than students who do not participate in the program.

CHAPTER 3

METHODS

Participants

Participants in this study were 40 7th and 8th grade girls from two separate middle schools located in and near a large city located in the East Coast. The participants were recruited from the two schools during the 2011-2012 and 2012-2013 academic years. The first school was a small private school located in an urban neighborhood. Approximately 72% of the students enrolled in this school are Caucasian. A majority of students from this school come from affluent families who are able to afford the nearly \$27,000 annual tuition. The second school was a medium-sized suburban public school located just outside of the city. Approximately 45% of the students enrolled in this school are African American and 43% are Caucasian. The families from the students who attend this school are more economically diverse than the families from the other school. While some students also come from very affluent backgrounds, others come from more impoverished backgrounds. As depicted in Table 3.1, 16 of the students from this sample attended the first school, whereas the remaining 24 students attended the second school.

The second research question examined the effects of a school-based intervention. Although all student participants were invited to participate in the intervention, three students were not included in these analyses. Two students at the first school chose to discontinue their participation because of scheduling conflicts. At the second school, one student was not randomized because her parents and school staff requested that she receive the intervention immediately. Therefore, her data were also not included in the

analyses for Question 2. The remaining students at both schools were randomly assigned to one of two groups. Students in the first group received the intervention immediately. Students in the other group served as the wait-list control group, and were offered to participate in the intervention at the end of the study. Table 3.1 outlines the number of students in each group at the two schools.

Table 3.1
Demographic Information of Participants

School	# of Students	Grade (n)	Assignment (n)
School 1: Small private school	16	7 th (3)	GT1 (6)
		8 th (13)	GT2 (8)
School 2: Medium-sized suburban public school	24	7 th (13)	GT1 (11)
		8 th (11)	GT 2 (12)

Measures

Students' levels of emotional distress and strengths, as well as their academic performance and beliefs were assessed using a variety of different measures. Table 3.2 outlines the measures that were included in this study and what domain they were measuring.

Table 3.2
Assessment Measures

Domain	Measure
Emotional distress	
Anxiety	Revised Children's Manifest Scale (RCMAS)
Depression	Children's Depression Inventory (CDI)
Negative mood	
Interpersonal problems	
Ineffectiveness	
Anhedonia	
Negative self-esteem	
Hopelessness	Hopelessness Scale for Children (HSC)
Body dissatisfaction	Reverse scoring of the physical Appearance scale of the Self-Perception Profile for Children (SPPC)
Emotional strengths	
Life satisfaction	Student Life Satisfaction Survey (SLSS)
Self-efficacy	Self-Efficacy Questionnaire for Children (SEQ-C)
Social self-efficacy	
Emotional self-efficacy	
Academic self-efficacy	
Coping strategies	Children's Coping Strategies Checklist (CCSC)
Active coping strategies	
Problem-focused coping	
Positive cognitive restructuring	
Distraction coping strategies	
Non-avoidant coping strategies	
Support seeking strategies	
Academic performance	
Math computation	Math curriculum-based assessment (CBA)
Reading comprehension	Multiple-Choice Reading Comprehension (MCRC)
Academic self-efficacy	Academic Self-Efficacy subscale of the Self-Efficacy Scale for Children (SEQ-C)
Effectiveness	Reverse scoring of the ineffectiveness subscale of the Children's Depression Inventory (CDI)

Revised Children's Manifest Scale (RCMAS). The RCMAS (Reynolds & Richmond, 1978) is a 37-item, self-report measure designed to assess levels of anxious

symptoms in school-aged children. It is a modified version of the original Children's Manifest Anxiety Scale (CMAS; Castaneda, McCandless, & Palermo, 1956) and was designed to address some of the psychometric shortcomings of the original form. The measure includes a number of statements regarding children and adolescents' physiological manifestations of anxiety, their level of worry and oversensitivity, and their concentration and fear (Reynolds & Richmond, 1979). For each item, participants are asked to determine whether the statement is true for them or not. Twenty-eight of the items comprise the total anxiety score, while the remaining nine items are used to determine the validity of the students' responses. Scores range from zero to 28, with high scores indicating high levels of anxiety. Although the RCMAS also yields subscales, this study will only be looking at students' total anxiety scores. The RCMAS has been found to have a positive correlation with other measures of anxiety (Lee, Piersel, Friedlander, & Collamer, 1988; Reynolds, 1980). Correlations between the RCMAS and another widely used measure of anxiety, the A-trait scale of the STAIC (Spielberger, 1973), have ranged from .51 to .85 (Crowley & Emerson, 1996; Reynolds, 1982). The RCMAS has also been found to be able to distinguish youth with anxiety disorders from those who do not have anxiety disorders (Seligman, Ollendick, Langley, & Baldacci, 2004). Test-retest reliability of the RCMAS indicates that it is a fairly stable measure of anxiety, with children's scores having a 0.68 correlation with their original scores nine months later (Reynolds, 1981). Finally, the RCMAS has been found to be able to detect treatment effects over time (Seligman et al., 2004).

Children's Depression Inventory (CDI). The CDI (Kovacs, 1992) is a 27-item, self-report measure designed to assess levels of depression in children between the ages

of 6 and 17. Each item measures a specific symptom of depression. In each item, there are three related statements that vary in severity. Participants are asked to choose which of the three statements best describes how they have felt in the past two weeks. The least extreme statements are given scores of zero, while the most extreme statements are scored as two. Scores usually range from zero to 54. In this study, however, a maximum score is 52, because item #9, which enquires about suicidal thoughts, was omitted. The CDI yields five subscales: Negative Mood, Interpersonal Problems, Ineffectiveness, Anhedonia, and Negative Self-Esteem. This study looked at students' scores on each of these subscales as well as their overall scores. Furthermore, the ineffectiveness subscale, which reflects youths' negative evaluation of their abilities and school performance, was also included in this study as an academic variable. Children and adolescents' scores on the CDI have been found to be positively correlated with other measures of depression, with coefficients ranging from 0.46 to 0.74 (Crowley & Emerson, 1996; Saylor, Finch, Spirito, & Bennett, 1984). The CDI has been found to be a reliable measure of depressive symptoms in a normative sample of students, with coefficient alphas ranging from .74 to .89 (Smucker, Craighead, Craighead, & Green, 1986).

Hopelessness Scale for Children (HSC). The HSC (Kazdin, Rodgers, & Colbus, 1986) is a 17-item, self-report measure of children's feelings of hopelessness. Respondents are asked to determine whether specific statements are true or untrue of them. Approximately half of the items are worded so that endorsing the statement reflects greater levels of hopelessness, while the other half are reverse scored. Scores range from zero to 17. High scores on the HSC reflect greater levels of hopelessness and negative expectations towards the future. The HSC has been found to have high internal reliability,

with an alpha coefficient of .97, and adequate test-retest reliability after six weeks, with a correlation of .52 between scores (Kazdin et al., 1986). Hopelessness scores on the HSC have been found to be moderately correlated with scores on depression inventories (Kazdin et al., 1986; Spirito, Williams, Stark, & Hart, 1988). Finally, the HSC has been found to be able to identify suicidal adolescents from a normative sample of adolescents (Spirito et al., 1988).

Self-Perception Profile for Children (SPPC). The SPPC (Harter, 1985) is a self-report questionnaire that evaluates different aspects of self-esteem in children age eight years and older. The full scale includes 36 items. Each item has two opposing statements. The child is asked to choose which of the two statements best reflects them and indicate whether it is *somewhat true* or *very true*. Each item is rated on a four-point scale, with a higher score reflecting a higher level of perceived competence. In addition to providing a global measure of self-worth, the SPPC measures students' concepts across five domains: Scholastic Competence, Social Acceptance, Athletic Competence, Physical Appearance, and Behavioral Conduct. These five domains have been confirmed through factor analysis by many researchers (e.g. Boivin, Vitaro, & Gagnon, 1992; Muris, Meesters, & Fijen, 2003). In this study, only the Physical Appearance domain, which has six items related to students' perceptions about their physical appearance, was administered. Because scores on this subscale reflect level of satisfaction within this domain, scores on this subscale were reverse scored in order to reflect individuals' level of dissatisfaction with their physical appearance. In contrast to the other measures of emotional distress used in the current study, low scores on this scale indicate higher body dissatisfaction. Internal reliability scores for this scale ranges from .79 to .86 (Muris et al., 2003;

Schumann et al., 2010; Van den Bergh & Marcoen, 1999). On a comparison of students' self-reports on the Physical Appearance scale of the SPPC with teacher reports of students' behavior in this domain on a teacher version of the scale, a correlation of .15 was found in a coed sample and .20 correlation was found in a female sample (Van den Bergh & Marcoen, 1999). Though significant, the correlation between scores on these two measures was not particularly high. This may be due to the fact that students' perceptions of their physical appearance may be difficult for teachers to observe.

Student Life Satisfaction Scale (SLSS). The SLSS (Huebner, 1991a) is a brief self-report scale that measures global life satisfaction in children as young as eight years old. It was the first scale developed to measure life satisfaction or well-being in children. The scale contains seven statements about one's life, which are rated on a 6-point Likert scale (ranging from 1 = *strongly disagree* to 6 = *strongly agree*). Scores are calculated first by reverse scoring the two negatively worded statements, and then taking the mean score across all seven individual items. High scores indicate higher levels of life satisfaction. The SLSS has been found to have high internal consistency, with alpha coefficients ranging from .82 to .89 (Antaramian et al., 2010; Huebner, 1991a; Suldo & Shaffer, 2008). Its test-retest reliability across two weeks was .74 (Huebner, 1991a). The validity of the SLSS has also been explored. Scores on the SLSS are negatively correlated with the anxiety subscale of the revised Piers-Harris Self-concept scale (Piers, 1984) and positively correlated other measures of happiness and life satisfaction (Huebner, 1991a). Students' ratings of their global life satisfaction on the SLSS have also been found to be related but independent from other affective variables (Huebner, 1991b).

Self-Efficacy Questionnaire for Children (SEQ-C). The SEQ-C (Muris, 2001) comprises 24 questions that measure children's beliefs about their ability to reach goals. Items are rated on a 5-point Likert scale (ranging from 1 = *not at all* to 5 = *very well*). The SEQ-C yields an overall self-efficacy score as well as three subscales that represent three domains of self-efficacy: (1) *social self-efficacy*, which has to do with one's beliefs regarding competence in building and maintaining social relationships; (2) *emotional self-efficacy*, which has to do with one's beliefs regarding competence in coping with and regulating emotions; and (3) *academic self-efficacy*, which has to do with one's beliefs regarding competence in academic areas. These three subscales have been confirmed by factor analysis procedures (Muris, 2001; Muris 2002; Suldo & Shaffer, 2007). Participants' overall self-efficacy score as well as their subscale scores were used in this study. The SEQ-C has been found to have satisfactory internal consistency, with a coefficient alpha of .88 for total self-efficacy and .85 to .88 for subscale scores (Muris, 2001). The subscales from this measure have been found to be negatively correlated with internalizing symptoms and externalizing symptoms, with coefficients ranging from -.24 to -.44, and positively correlated with life satisfaction, with coefficients ranging from .35 to .46 (Suldo & Shaffer, 2007). In their study, Suldo and Shaffer (2007) made several modifications to the language of the items in the SEQ-C to make things more consistent with English colloquial speech, as the original scale was developed for youth in the Netherlands. The same modifications were used in this study as well.

Children's Coping Strategies Checklist (CCSC). The CCSC (Ayers et al., 1996) contains 52 items that measure how 9 – 13 year old children cope with problems. Each item refers to different types of coping strategies. Participants are asked to rate the

frequency in which they use that strategy during a stressful situation using a 4-point Likert scale (ranging from 1 = *never* to 4 = *most of the time*), with higher scores indicating greater use of coping strategies. The coping strategies provided in the scale fall within four major domains: Active Coping, Distraction, Avoidance, and Support-Seeking Strategies. Each domain also yields several subscales characterized by specific coping strategies used. Active coping, distraction, and support-seeking strategies represent positive coping strategies whereas avoidance represents a maladaptive strategy. In this study, students' scores on the four domains of coping, as well as their scores on the two subscales from the Active Coping Strategies domain, Problem Focused Coping and Positive Cognitive Restructuring, were used. Because avoidance is considered to be a maladaptive form of coping, in the current study scores on the Avoidance coping subscale were reverse scored to reflect a positive trait, which was labeled as "non-avoidant coping". Alpha coefficients of the internal consistency of different subscales range from .73 to .89 (Ayers et al., 1996). The CCSC has also been found to have adequate construct validity, as demonstrated by its fit with its hypothesized model of coping strategies (Ayers et al., 1996).

Math curriculum-based assessments (CBAs). CBAs are brief measures of specific academic areas that assess students using grade-level content. They were used in this study to measure academic performance because of their sensitivity to small academic gains and their ease to administer in group settings. The math computation assessments used in this study were assessments that were available from the easyCBM® website. These measures contain 16 multiple-choice math computation problems that students completed independently. Students were permitted to use scrap paper to solve the

problems, but could not use a calculator. They received one point for each correct answer. In this study, students were administered math computation passages at the appropriate level for their grade-level at baseline. They were administered alternative passages of that same grade-level across all three assessment periods, even after they had transitioned to the next grade. This was done for two reasons. First, in order to make a direct comparison of student progress over time at both schools, where the schedules varied slightly, it was important to use equivalent versions of the original measure. Second, because these measures only go up to 8th grade, in order to include 8th grade students in the study, it was necessary to administer assessments from the grade that students started the study. The content of these measures are closely aligned to Common Core State Standards in Oregon, which is the state in which they were developed (Anderson, Irvin, Alonzo, & Tindal, 2012). The 6th grade measures assessed students' numbers and operations skills, the 7th grade measures assessed their number and operations, algebra and geometry skills, and the 8th grade measures assessed their algebra skills.

Multiple Choice Reading Comprehension (MCRC). The MCRC measures retrieved from easyCBM®'s website consisted of 1,500 word narrative fictional stories. Each reading passage is followed by 20 multiple choice comprehension questions that contain three possible choices – one correct response, one near-distractor, and one far-distractor. Comprehension questions are designed to assess students' literal, inferential, and evaluative comprehension. Students were instructed to read the passage and answer the questions independently. They received one point for each correct response. MCRC passages are available for middle school students. Students were administered MCRC

passages at the appropriate level for their grade-level at baseline. Again, students were administered alternative passages of that same grade-level across all three assessment periods, even after they had transitioned to the next grade. MCRC reading passages from easyCBM® have acceptable levels of reliability, though the alternate forms are less correlated than desired (Alonzo & Tindal, 2009; Irvin, Alonzo, Lai, Park, & Tindal, 2012). Additionally, the MCRC forms developed by easyCBM® have been found to predict reading scores on end of the year state tests (Anderson, Alonzo, & Tindal, 2011).

Design and Procedures

Parents and students were given information about a strengths and resilience program for girls that would be offered at their daughters' school. Participants were recruited in the fall of 2011 and 2012. Families who were interested were provided with a recruitment flyer and two copies of a parent consent and student assent form. Only students who returned signed parental consent and student assent forms were permitted to enroll in the study. All students with permission were administered a questionnaire packet, which they filled out across two or three assessment times to reduce the amount of work in one session. Students were asked to work on the questionnaire packets individually and to try their hardest to answer each question truthfully. They were also reminded that their participation was voluntary, and if they did not feel comfortable responding to any questions, they did not have to. Although students were not permitted to use calculators on the math assessments, this information was not made clear to at least two of the students at the second school, who were observed using a calculator.

After baseline data were collected and scored, students were randomly assigned to one of two groups – GT1, which participated in the GT curriculum immediately, and GT2, which was scheduled to participate in the GT curriculum after a six-month follow-up period. Groups were stratified by grade and baseline CDI scores so that the two groups were similar in terms of participant age and depression levels. Five 7th grade students and 13 8th grade students were randomized into the intervention group, and nine 7th grade students and 11 8th grade students were randomized into the wait-list control group. Students in the GT1 group received the intervention at their school. At School 1, participants received the intervention during a built-in activity period during the students' lunch time, whereas students in the two groups at School 2 received the intervention afterschool.

Sessions met on a weekly basis for approximately four to ten sessions, depending on the school's schedule. The group at School 1 met for 10 sessions whereas one of the groups at School 2 only met for four sessions due to a delayed intervention start and scheduling constraints. Because the groups were offered during the school day at School 1, sessions lasted for only 50 minutes. At School 2, where the program was offered as an afterschool activity, sessions were closer to 80 minutes in length. Groups were co-led by two doctoral students at School 1, and a team with one doctoral-level psychologist and two undergraduate or post-baccalaureate students at School 2. Group leaders received regular supervision from a licensed psychologist.

All participants were told that their participation was voluntary and they were free to drop out of the program at any point. At the end of the program, all students who were enrolled in the study were invited to fill out another questionnaire packet. Most of the

measures were the same; however students were administered alternate, equivalent forms of the math and reading measures to reduce practice effects. Students were asked to fill out a third questionnaire packet after a six-month follow-up period to measure long-term effects of the program. However, due to scheduling difficulties at School 2, many students were administered questionnaire packets over the phone at post-intervention and six-month follow-up. Because of this, many of these students did not complete the achievement measures. The second group at School 2 was unable to complete the questionnaires for the six-month follow-up period because of mold issues at their school. After students had completed all three questionnaire packets, students assigned to GT2 were invited to participate in the program. At School 1, because most of the students were in the high school at that point and their schedules changed dramatically, the GT2 group did not participate in the program as there was not a time in which most students were available.

Intervention

The Girls in Transition (GT; Gillham et al., 2008) program is a newly developed school-based group intervention designed for early adolescent girls. The curriculum is split into four units: thinking skills, problem-solving and coping skills, challenging media messages, and identification of strengths and goals. The GT program is similar to the Penn Resiliency Program (PRP), with a few modifications to make it more appropriate for an all-girls format. Like PRP, GT uses a cognitive-behavioral approach to teaching students the relationship between their thoughts and feelings. Students are taught to recognize their maladaptive thinking patterns and to establish more adaptive ways of

thinking by de-catastrophizing and restructuring their thought. The intervention utilizes a variety of different modalities to teach these skills to students, including acting out skits and role plays, participating in interactive games, reflecting on media clips, filling out worksheets, and discussing topics as a group or in pairs. As with many cognitive-behavioral interventions, students are encouraged to practice the skills they learn during the sessions at home in the form of weekly homework assignments. The GT program differs from PRP in order to address some of the gender-specific vulnerabilities that adolescent girls face. In addition to the cognitive-behavioral skills that are taught in PRP, the GT curriculum also focuses on specific topics that are particularly relevant to girls, such as rumination, perfectionism, media messages, and identifying positive role models.

Data Analyses

Question 1: What is the relationship between reported levels of emotional distress (anxiety, depression, hopelessness, and body image concerns), emotional strengths (life satisfaction, self-efficacy, and coping strategies), and subjective and objective measures of academic achievement among a normative sample of middle school girls?

In order to answer Question 1, several different analyses were conducted. First, a correlation matrix of bi-variate Pearson correlations were computed using the baseline data from all 40 of the students who were enrolled in the study to determine the relationship between all variables. Second, a multiple regression was run to determine what variables are most correlated with students' performance on math and reading tests. For this analysis, all study variables were entered as independent variables and students' math and reading scores were entered as the dependent variables. A hierarchical multiple

regression was also conducted to identify whether students' reported levels of emotional strengths helped predict their academic achievement above and beyond what their reports about their emotional distress might offer. Power analyses indicate that a sample larger than 40 students is necessary in order to detect significance at the .05 level. However, due to unavoidable circumstances, including low participant enrollment and a school district neglecting to provide approval to the study, a larger sample was not possible.

In order to determine whether specific groups of students within this sample reported different symptom patterns, students were classified into various groups and t-tests were conducted comparing these students to the remaining students from the sample. First, students who reported high levels of mental health symptoms were classified into groups. Using cut-off scores obtained through previous research, students reporting a score of 19 or higher on the RCMAS were classified into the elevated anxiety group (Montgomery & Finch, 1974; Reynolds & Richmond, 1978), students reporting a score of 16 or higher on the CDI were classified into the elevated depression group (Timbremont, Braet, & Dreessen, 2004), and students reporting a score of seven or higher on the HSC were classified into the elevated hopelessness group (Kazdin et al., 1986). With each group, the scores on the four academic measures of the students with elevated scores were compared to the scores of their lower scoring counterparts. Body dissatisfaction was not included in this analysis. Cut-off scores denoting clinically relevant levels of body dissatisfaction on the SPPC scale have not been established, since the aim of this scale is to identify areas where individuals report feelings of self-worth. Although the Physical Appearance subscale is being used in this study as an inverse

index of dissatisfaction, the subscale in fact measures satisfaction. Therefore, it was not appropriate to include for this particular analysis.

Students were also classified into groups based on their performance on the math and reading tests administered. Using the fall grade-level norms presented on the easyCBM.org website, students who scored within the 75th percentile or higher were labeled as “high” scorers, students who scored in the 20th percentile or lower were labeled as “low” scorers, and students in between were labeled as “medium” scorers for both academic subjects. A one-way ANOVA was conducted comparing mean scores on each of the psychological variables between the three groups.

Finally, in order to determine if results were consistent at both schools, the data were split and Pearson and Spearman correlations were run at each school separately. Psychological variables were entered as the independent variables, and the four academic outcomes (academic self-efficacy, ineffectiveness, math performance, and reading performance) were entered as dependent variables. Chi-square tests were also run to determine whether high and low academic performers were more likely to attend one school over another.

Question 2: Did students who participated in a depression prevention intervention demonstrate any changes in their reported levels emotional distress, emotional strengths, or academic achievement relative to students not receiving intervention?

In order to answer Question 2, Friedman tests were computed for both groups to identify whether scores on any of the study variables changed over the three assessment points. Assessment period was entered as the independent variable and all of the study

variables (e.g. anxiety, depression, life satisfaction, math performance) were entered as the dependent variables. Although a repeated measures MANOVA would have been the preferred statistical analysis for this research question, the decreasing sample size across the three periods did not allow for such a complex analysis. Paired samples t-tests were also conducted examining differences between both groups from baseline to post-intervention and baseline to the six-month follow-up period.

In order to evaluate whether there were group differences between the two groups at each of the assessment periods, Mann-Whitney *U* tests and one-way ANOVAs were run. Additionally, one-way ANOVAs were computed examining whether the two groups differed in the degree to which their reported levels on each of the study variables changed at both of the follow-up periods. Although a MANOVA would have been a more appropriate test for this analysis, again due to small sample sizes, ANOVAs were deemed more appropriate.

Finally, in order to evaluate whether there were dosage effects, the paired samples t-tests and the on-way ANOVAs were also conducted, but with results from each of the three cohorts split. Cohort 1 consisted of all study participants at School 1 who continued with the study ($n = 6$ in the intervention group; $n = 8$ in the wait-list control group). Students in the intervention group met for approximately ten 50-minute long weekly sessions. At School 2, there were two separate cohorts because the intervention was offered over two consecutive years. Students who were randomized into the study the first year were labeled as Cohort 2 ($n = 7$ in the intervention group; $n = 8$ in the wait-list control group), which met for only four 80-minute long weekly sessions, and students who were randomized in the second year were labeled as Cohort 3 ($n = 4$ in the

intervention group; n = 4 in the wait-list control group), which met for nine or ten 80-minute long weekly sessions.

CHAPTER 4

RESULTS

Research Question 1

Before answering the first research question, which asked about the relationship between students' self-reported mental status and their academic performance and beliefs, the relationship between the psychological variables was examined to assess the validity of the measures among this particular population of students. Table 4.1 presents the Pearson correlation coefficients for the relationship between students' reported levels of emotional distress and strength. As predicted, there were strong positive correlations between measures assessing similar psychological factors whereas there were negative correlations between measures assessing different psychological factors. For example, students' reported levels of depression and anxiety were positively correlated with one another, whereas their levels of depression and life satisfaction were negatively correlated.

Table 4.1.
Pearson Correlations for All Psychological Variables

Psychosocial factor	1	2	2a	2b	2c	2d	2e	3	4
1. Anxiety									
2. Depression	.679**								
2a. Negative mood	.653**	.793**							
2b. Interpersonal problems	.377*	.626**	.425**						
2c. Ineffectiveness	.347*	.642**	.410**	.258					
2d. Anhedonia	.568**	.749**	.432**	.392*	.155				
2e. Negative self-esteem	.261	.531**	.187	.213	.252	.362*			
3. Hopelessness	.160	.601**	.490**	.340*	.549**	.231	.577**		
4. Body dissatisfaction†	.195	.205	.139	.248	.107	.031	.312	.423**	
5. Life satisfaction	-.371*	-.580**	-.528**	-.384*	-.298	-.436	-.307	-.493**	-.444**
6. Self-efficacy	-.539**	-.595**	-.588**	-.230	-.695**	-.250	-.178	-.504**	-.019
6a. Social self-efficacy	-.390*	-.415**	-.380*	-.029	-.496**	-.222	-.171	-.397*	-.029
6b. Emotional self-efficacy	-.578**	-.598**	-.658**	-.233	-.580**	-.284	-.180	-.307	-.053
6c. Academic self-efficacy	-.342*	-.570**	-.529**	-.346*	-.768**	-.162	-.122	-.508**	.031
7. Active coping strategies	.102	-.168	-.113	-.206	-.239	.068	-.217	-.420**	-.212
7a. Problem-focused coping	.050	-.243	-.178	-.219	-.275	-.010	-.258	-.386*	-.140
7b. Positive cognitive restructuring	.142	-.052	-.019	-.155	-.156	.145	-.131	-.384*	-.255
8. Distraction coping strategies	-.001	-.226	-.137	-.115	-.104	-.127	-.385*	-.381*	-.326*
9. Non-avoidant coping strategies†	-.471**	-.309	-.238	-.054	-.155	-.375*	-.096	-.088	-.143
10. Support seeking coping strategies	-.098	-.311	-.332*	-.086	-.204	-.172	-.247	-.436**	.010

Psychosocial factor	5	6	6a	6b	6c	7	7a	7b	8	9
5. Life satisfaction										
6. Self-efficacy	.606**									
6a. Social self-efficacy	.517**	.891**								
6b. Emotional self-efficacy	.575**	.902**	.741**							
6c. Academic self-efficacy	.382*	.866**	.630**	.665**						
7. Active coping strategies	.187	.420**	.334*	.360*	.420**					
7a. Problem-focused coping	.237	.501**	.415**	.411**	.504**	.926**				
7b. Positive cognitive restructuring	.099	.239	.172	.226	.236	.903**	.675**			
8. Distraction coping strategies	.292	.140	.014	.202	.158	.565**	.478**	.562**		
9. Non-avoidant coping strategies†	.079	.168	.124	.122	.199	-.486**	-.290	-.621**	-.212	
10. Support seeking coping strategies	.337*	.359*	.349*	.318*	.288	.554**	.574**	.432**	.422**	.099

†Scales are reverse scored to reflect the constructs that they are measuring.

* $p < .05$. (2-sided) ** $p < .01$. (2-sided)

In order to answer the first research question, Pearson correlation coefficients were calculated to examine the relationship between all of the psychological variables and students' beliefs about their academic abilities as well as their performance on math and reading tests. It was hypothesized that students' scores on the academic measures would be negatively correlated with their levels of emotional distress and positively correlated with their degree of emotional strengths. Table 4.2 summarizes the major findings from this analysis. As shown, the psychological variables had stronger correlations with the two subjective measures of academic performance, students' reported academic self-efficacy and effectiveness, than with their performance on the math and reading tests. Students reporting greater mental health problems tended to report lower levels of academic self-efficacy and higher levels of effectiveness than students with fewer mental health problems. Conversely, students reporting higher levels of specific emotional strengths tended to report higher levels of academic self-efficacy and effectiveness. Fewer psychological variables were correlated with math and reading performance.

Table 4.2
Pearson Correlations between Psychological Variables and Academic Outcomes

Psychological variables	Academic outcomes			
	Academic self-efficacy	Effectiveness†	Math achievement	Reading achievement
Emotional Distress				
Anxiety	-.342*	-.347**	-.184	.149
Depression	-.570**	-.642**	-.238	-.246
Negative mood	-.529**	-.510**	-.139	-.032
Interpersonal problems	-.346*	-.258	-.307	-.521**
Ineffectiveness	-.768**	--	-.140	-.274
Anhedonia	-.162	-.155	-.093	-.049
Negative self-esteem	-.122	-.252	-.189	-.130
Hopelessness	-.508**	-.549**	-.203	-.438*
Body dissatisfaction†	.031	-.107	-.191	-.057
Emotional strengths				
Life satisfaction	.382*	.298	-.016	.153
Self-efficacy	.866**	.695**	.093	.256
Social self-efficacy	.630**	.496**	.080	.160
Emotional self-efficacy	.665**	.580**	-.224	.059
Academic self-efficacy	--	.768**	.362*	.400*
Active coping strategies	.420**	.239	-.127	.142
Problem focused coping	.504**	.275	.002	.168
Positive cognitive restructuring	.236	.156	-.247	.080
Distraction coping strategies	.158	.104	-.294	-.011
Non-avoidant coping strategies	.199	.155	.252	.047
Support seeking coping strategies	.288	.204	-.003	.007

†Scales are reverse scored to reflect the constructs that they are measuring.

* $p < .05$. (2-sided) ** $p < .01$. (2-sided)

Because of the small sample included in this study, Spearman *rho* correlation coefficients were also calculated for the relationship between the psychological and academic variables. Results were similar with this test, though only students' academic self-efficacy continued to be strongly correlated with their performance on the math and reading tests. The relationship between students' mental health factors and their reported levels of academic self-efficacy and ineffectiveness persisted while additional variables (interpersonal problems and negative self-esteem) also came out as significantly correlated with their reported levels of effectiveness. Because the results from both tests were broadly consistent, Pearson correlations were used in this study, as this is a more

sophisticated test based on the linear relationship between variables rather than their rank order.

In order to determine the degree to which students' reported levels of mental health problems and strengths predicted their scores on the math and reading tests, two separate linear regressions were calculated. Students' overall score on each of the psychological measures (subscales were not included) were entered into the equation as independent variables. Neither the regression equation for math ($F = .705$, $p > .05$; $R^2 = .131$) nor the regression equation for reading was significant ($F = 1.995$, $p > .05$; $R^2 = .333$). None of the mental health variables were significant predictors of students' scores on the math test. Because academic self-efficacy and effectiveness are both psychological variables and academic outcomes in this variable, regressions for these academic measures were not calculated.

To examine whether students' reported levels of mental strengths predicted their academic performance above and beyond what would be predicted by assessing their symptoms of mental health problems, two-level hierarchical regressions were conducted with math and reading scores as the dependent variables. Anxiety, depression, hopelessness, and body dissatisfaction scores were entered at the first level, and life satisfaction, self-efficacy, and the three adaptive dimensions of coping strategies (active coping strategies, distraction strategies, and support seeking strategies) were entered at the second level. Subscales for depression, self-efficacy, and active coping strategies were not included in this analysis. Avoidant coping strategy scores were also not included in this analysis, since it is not considered to be an emotional strength. Though this analysis was not appropriate given its complexity with such a limited sample size, it was

still conducted because the research question lends itself well to this analysis. Results of the two separate hierarchical regression analyses were not significant. As would be expected with this sample size, neither students' reported levels of mental health problems, nor that information combined with their reported level of emotional strengths significantly predicted their math and reading scores.

In order to better understand the relationship between mental health problems and academic outcomes, students were divided into groups based on reported severity of symptoms on the anxiety, depression, and hopelessness measures. Students who reported elevated scores on these measures were compared to students reporting normative or low levels. Cut-off scores for each of the three measures of mental health problems were determined based on findings from previous studies (see Kazdin et al., 1986; Montgomery & Finch, 1974; Reynolds & Richmond, 1978; Timbremont, Bract, & Dreessen, 2004). If a student reported high levels of symptoms on more than one measure, she was included in more than one elevated scores group. Because the participants in this study came from a normative sample, only a small percentage of students were classified into each of the clinically relevant groups. Six students reported elevated levels of anxiety, seven reported elevated levels of depression, and six reported elevated levels of hopelessness. Although MANOVAs would have been the most appropriate analysis to compute differences between high scorers and average/low scorers, due to the small sample size, group differences were difficult to detect. Instead, one-way ANOVAs were computed to compare the mean scores on the academic measures between students reporting elevated levels of symptoms and students reporting normative or low levels. Table 4.3 summarizes the findings from these tests. Students

reporting elevated scores on measures of anxiety, depression, or hopelessness were more likely to report negative beliefs about their academic abilities than their less distressed peers. Additionally, students scoring within the elevated range on either the depression or hopelessness measures were also more likely to earn lower scores on the reading test than their peers, though they did not differ from their peers with regard to their math scores.

Table 4.3

One-Way ANOVAs Examining Differences between Students in Clinical Range and Normative Peers

Psychological variables	Anxiety				Depression				Hopelessness			
	High M (SD)	Low M (SD)	<i>p</i>	η_p^2	High M (SD)	Low M (SD)	<i>p</i>	η_p^2	High M (SD)	Low M (SD)	<i>p</i>	η_p^2
Academic self-efficacy	23.333 (5.538)	28.753 (5.897)	.044*	.108	19.143 (8.821)	28.941 (6.010)	.001**	.258	22.020 (4.336)	28.788 (5.878)	.019*	.144
Effectiveness†	3.167 (1.941)	1.455 (1.277)	.008**	.173	3.500 (1.852)	1.406 (1.292)	.001**	.270	3.167 (1.169)	1.455 (1.416)	.008**	.173
Math	10.400 (4.219)	10.774 (3.212)	.818	.002	9.750 (4.113)	10.844 (3.244)	.540	.011	8.750 (5.500)	10.969 (2.967)	.210	.046
Reading	14.250 (2.217)	12.929 (2.707)	.360	.028	10.000 (2.646)	13.414 (2.486)	.032*	.145	10.500 (3.697)	13.464 (2.333)	.034*	.141

†Scales are reverse scored to reflect the constructs that they are measuring.

p* < .05. (2-sided) *p* < .01. (2-sided)

Similarly, in order to better understand the psychological characteristics of those who struggled academically and those who thrived, students were classified into one of three groups (high, medium, or low) based on their achievement scores on the two tests using the Fall grade-level normative cut-off scores provided by easyCBM.org. One-way ANOVAs were computed comparing students in the three groups for both academic subjects – those who scored within the 20th percentile or lower, those who scored between the 21st and 74th percentile, and those who scored in the 75th percentile or higher. Students in the three groups were only statistically different in their reported levels of interpersonal problems ($F = 3.946, p > .05$ for math; $F = 3.017, p > .05$ for reading) and academic self-efficacy ($F = 5.491, p > .01$ for math). On all other psychological variables, there were no statistically significant differences across the three groups.

Next, in order to determine whether the relationship between these variables was similar at both schools, further analyses were conducted. One-way ANOVAs were conducted to examine the differences between the two schools across all study variables. Table 4.4 presents the results from the ANOVAs as well as demographic information about both schools' entire student body. As the table depicts, the two schools are significantly different from each other across nearly every variable. Not only did the mean scores differ across the two schools, but so did the variability. For the most part, students at School 1 reported significantly fewer mental health problems and greater levels of emotional strengths (excluding coping skills) than students at School 2. Moreover, there was less variance in scores at School 2 than at School 1, indicating that students at School 1 are more homogenous than at School 2. MANOVAs were also run and similar results were found, but because of the number of variables and subscales

included in this study, only the results from the ANOVAs are presented in the table.

While most results remained when MANOVAs were conducted, differences in anhedonia and reading performance disappeared.

Table 4.4
One-Way ANOVAs Examining Differences Between Schools

Psychological & demographic variables	School 1 M (SD)	School 2 M (SD)	<i>p</i>	η_p^2
Mental health problems				
Anxiety	7.496 (4.912)	13.019 (6.329)	.028*	.124
Depression	5.200 (2.541)	11.649 (5.256)	.000**	.328
Negative mood	1.938 (1.289)	3.708 (1.899)	.002**	.218
Interpersonal problems	0.063 (0.250)	1.125 (1.227)	.002**	.234
Ineffectiveness	0.813 (1.047)	2.500 (1.615)	.001**	.263
Anhedonia	1.938 (1.482)	3.333 (2.408)	.046*	.101
Negative self-esteem	0.875 (.885)	1.208 (1.215)	.352	.023
Hopelessness	2.476 (1.114)	4.758 (3.035)	.006**	.186
Body dissatisfaction†	2.989 (.595)	2.652 (.670)	.223	.040
Emotional strengths				
Life satisfaction	34.188 (3.124)	28.167 (6.340)	.001**	.246
Self-efficacy	96.469 (10.280)	74.548 (19.584)	.000**	.311
Social self-efficacy	32.844 (3.898)	26.848 (8.260)	.011*	.164
Emotional self-efficacy	30.813 (5.154)	24.435 (7.366)	.005**	.194
Academic self-efficacy	32.813 (3.410)	23.265 (7.082)	.000**	.402
Active coping strategies	2.783 (.470)	2.553 (.550)	.179	.047
Problem focused coping	2.682 (.536)	2.375 (.638)	.121	.062
Positive cognitive restructuring	2.883 (.561)	2.731 (.524)	.388	.020
Distraction coping strategies	2.427 (.554)	2.300 (.525)	.469	.014

Table 4.4, continued

Psychological & demographic variables	School 1	School 2	<i>p</i>	η_p^2
	M (SD)	M (SD)		
Non-avoidance coping strategies†	2.417 (.576)	2.663 (.466)	.144	.055
Support seeking strategies	2.373 (0.558)	2.055 (.818)	.183	.046
Academic performance				
Math	11.68 (2.500)	9.950 (3.706)	.118	.070
Reading	14.063 (2.113)	12.125 (2.850)	.037*	.137

†Scales are reverse scored to reflect the constructs that they are measuring.

* $p < .05$. (2-sided) ** $p < .01$. (2-sided)

In order to further examine the differences in academic performance across the two schools, a chi-square test of independence was calculated to determine whether high or low scoring students were more likely to attend one school over another. Two significant interactions were found. Students who scored in the 20th percentile or lower on the math test were significantly more likely to attend School 2 ($\chi^2 = 5.625, p > .05$). Also, students who scored in the 75th percentile or higher on the reading test were significantly more likely to attend School 1 ($\chi^2 = 7.792, p > .05$). In fact, all of the students who scored high on the reading test came from School 1. Again, these findings suggest that the students at the two schools differed dramatically from each other.

Pearson correlations between the psychological variables and the academic measures were calculated for each of the two schools to determine whether their relationships differed across the two schools. Because of the low variance in students' scores on the study variables at School 1, any outliers were likely to have a strong impact on the results. Although a few of the students reported relatively high scores on some of the mental health variables, only one student reported scores in the clinically significant range. A Mahalanobic Distance test was computed in order to determine whether this

student's scores on the depression and anxiety scales made her a statistical outlier, which indicated that she was not a statistical outlier ($F < 2.5$). However, because her scores differed from her peers in a clinically meaningful way, her data were excluded from the analyses in order to better understand the general trends that were occurring at School 1. It is important to note, however, that when her data were included, the results changed substantially.

As shown in Table 4.5, which presents the results from the Pearson correlations across the two schools, the relationship between the psychological and academic variables differed across the two schools. Very few significant relationships emerged between the variables at School 1. Among the subjective measures of academic performance, only problem-focused coping ($r = .668, p > .001$) and self-efficacy ($r = .617, p > .05$) were positively correlated with academic self-efficacy and negative self-esteem ($r = -.549, p > .05$) was negatively correlated with effectiveness. Only anxiety ($r = -.567, p > .05$) and anhedonia ($r = -.583, p > .05$) were significantly correlated with math performance, while an unanticipated positive correlation between hopelessness and reading ($r = .531, p > .05$) emerged.

Stronger relationships between the psychological and academic variables were detected at School 2. Among these students, a number of the psychological variables were strongly correlated with the subjective academic measures, all in the expected direction. However, only four of the psychological variables were significantly correlated with scores on the math and reading tests, and two of them (emotional self-efficacy and distraction coping strategies) were in the unexpected direction. The relationships between

the subjective and objective measures of academics were not significant at either of the two schools.

Table 4.5
Pearson Correlations Between Psychological Variables and Academic Outcomes by School

Psychological variables	Academic self-efficacy		Effectiveness†		Math achievement		Reading achievement	
	School 1	School 2	School 1	School 2	School 1	School 2	School 1	School 2
Emotional distress								
Anxiety	-.055	-.024	.067	.131	-.567*	.200	.263	.227
Depression	-.181	-.311	.344	.483*	-.415	.028	.269	-.267
Negative mood	.058	-.355	-.179	.390	-.402	.175	-.018	.162
Interpersonal problems	--	-.034	--	-.033	--	-.203	--	-.620**
Ineffectiveness	-.180	-.724**	--	--	.171	.012	.052	-.287
Anhedonia	-.028	.083	-.224	.034	-.583*	.140	.157	.041
Negative self-esteem	-.344	.010	.549*	.122	.000	-.208	.451	-.305
Hopelessness	-.246	-.363	.231	.490*	-.308	-.084	.531*	-.562*
Body satisfaction†	-.467	.345	.318	-.091	-.259	-.045	.326	-.131
Emotional strengths								
Life satisfaction	.197	.017	-.102	-.021	.267	-.306	-.341	.043
Self-efficacy	.617*	.808**	-.165	-.619**	-.037	-.282	-.044	.158
Social self-efficacy	.327	.535**	.154	-.428*	-.056	-.116	-.157	.095
Emotional self-efficacy	.316	.587**	-.313	-.470*	-.122	-.652**	-.095	-.141
Academic self-efficacy	--	--	-.180	-.724**	.171	.198	.235	.343
Active coping strategies	.469	.357	.123	-.148	-.345	-.251	.033	.208
Problem focused coping	.668**	.430*	.149	-.197	-.095	-.135	.092	.196
Positive cognitive restructuring	.124	.212	.058	-.072	-.464	-.366	-.033	.185
Distraction coping strategies	.122	.146	.320	-.186	-.155	-.476*	-.148	-.047
Non-avoidant coping strategies†	.098	.023	-.193	.007	.393	.119	-.045	-.061
Support seeking coping strategies	.061	.216	.349	-.167	-.236	-.045	-.338	.142

†Scales are reverse scored to reflect the constructs that they are measuring.

* $p < .05$. (2-sided) ** $p < .01$. (2-sided)

Research Question 2

The second research question sought to examine whether participation in the Girls in Transition program was associated with decreases in participants' self-reported levels of emotional distress, increases in their reported levels of emotional strengths, and increases in their scores on tests measuring their academic beliefs and abilities. Before

answering this question, a one-way ANOVA was run to determine whether there were differences between the intervention and control groups at baseline. No significant differences were detected across any of the variables included in this study.

A repeated measures MANOVA would have been an ideal analysis to answer this research question. However, due to the small sample size and high attrition rates, there were only eight students in the intervention group and 12 students in the wait-list control group who completed the questionnaires at all three assessment points. As a result, a repeated measures MANOVA was not an appropriate analysis to detect changes over the three assessment periods. Instead, a non-parametric Friedman test was computed for students in both groups separately. Assessment period was entered as the independent variable and all of the study variables (e.g. anxiety, depression, life satisfaction, math performance) were entered as the dependent variable. In the intervention group, significant differences across time were found in students' reported use of active coping strategies ($p = .010$). Students' reported use of active coping strategies increased over time after participation in the intervention. Furthermore, both of the subscales of the active coping strategies dimension, problem focused coping and positive cognitive restructuring ($p = .025$ and $p = .034$, respectively), increased over time as well. No other differences were detected among the intervention group. Although not statistically significant ($p = .05$), the wait-list control group did report higher levels of interpersonal problems over time. No other changes were detected in this group.

Because only a small sample was included in the Friedman test due to high dropout rates, paired-samples t-tests were also computed comparing students' scores at baseline to their scores at the end of the intervention and at the six-month follow-up

period. Results are summarized in Table 4.6. It should be noted that although all students enrolled in the study were included in these analyses, with the exception of the two students who dropped out of the study and one student who was not included in randomization, the results were broadly consistent when only the data from those who completed follow-up questionnaires were included. As shown in Table 4.6, students who participated in the Girls in Transition program reported significant benefits along several of the areas tested immediately following treatment, whereas students who did not participate in the program reported fewer benefits. Specifically, students in the intervention group reported decreases in feelings of anhedonia ($r^2 = .502$) and anxiety ($r^2 = .377$) as well as increases in their social self-efficacy ($r^2 = .472$). They also reported increased use of certain adaptive coping strategies ($r^2 = .394$ for positive cognitive restructuring; $r^2 = .284$ for distraction coping, which neared significance). Their use of adaptive coping strategies persisted through the six-month follow-up period, with students reporting significantly greater use of active coping strategies ($r^2 = .809$), problem-focused coping strategies ($r^2 = .613$), and positive cognitive restructuring ($r^2 = .672$), and close to significant increases in their use of support seeking strategies ($r^2 = .435$). All other program benefits disappeared by the six-month follow-up period. Though it was hypothesized that students in the intervention group might demonstrate academic gains upon program completion, they did not report increases in their perceived academic abilities nor in their math or reading performance.

Many of the variables remained stable among students in the wait-list control group, as might be expected. There were two exceptions to this, however. As shown in Table 4.6, students in the wait-list control group reported lower levels of hopelessness

(nearing significance) at the first follow-up period than they did at baseline ($r^2 = .062$), though these differences faded at the six-month follow-up period. Decreases in hopelessness reached significance when Wilcoxon tests were conducted instead ($p = .046$). Additionally, their scores on the math test increased at follow-up ($r^2 = .312$), with differences persisting through six-month follow-up ($r^2 = .348$). Both of these findings were unexpected.

Table 4.6
Paired Samples T-test of Group Changes across Follow-Up Periods

Psychological variables	Intervention group					Wait-list control group				
	T1 M (SD)	T2 M (SD)	T3 M (SD)	T1-T2 <i>p</i>	T1-T3 <i>p</i>	T1 M (SD)	T2 M (SD)	T3 M (SD)	T1-T2 <i>p</i>	T1-T3 <i>p</i>
Emotional Distress										
Anxiety	12.695 (7.406)	9.695 (6.758)	8.626 (6.448)	.019*	.284	9.582 (6.079)	10.118 (5.146)	9.500 (5.266)	.614	.468
Depression	8.923 (5.575)	7.634 (6.547)	6.889 (4.540)	.112	.431	9.0329 (5.220)	9.000 (8.178)	6.667 (6.610)	.982	.714
Negative mood	2.615 (1.502)	2.154 (2.267)	2.359 (1.898)	.376	.487	2.941 (2.015)	2.529 (2.375)	2.167 (2.0182)	.378	.191
Interpersonal problems	.615 (.768)	.846 (.987)	.674 (.870)	.273	.657	.647 (1.170)	.941 (1.520)	.333 (.651)	.206	.082
Ineffectiveness	1.846 (1.676)	2.000 (1.414)	1.111 (1.054)	.687	.512	1.706 (1.611)	1.941 (2.105)	1.000 (1.128)	.533	.166
Anhedonia	2.923 (2.290)	1.934 (2.135)	1.667 (1.414)	.005**	.174	2.529 (2.035)	2.706 (2.443)	2.500 (2.468)	.768	.339
Negative self-esteem	.923 (1.382)	.692 (1.378)	1.000 (1.118)	.534	.559	1.235 (1.033)	.882 (1.317)	.667 (1.231)	.318	.166
Hopelessness	3.000 (1.581)	3.726 (2.287)	2.688 (1.421)	.211	.438	4.302 (3.266)	3.651 (3.442)	2.922 (3.201)	.051	.616
Body dissatisfaction†	2.847 (.510)	3.014 (.665)	2.667 (.760)	.451	.862	2.843 (.698)	2.725 (.549)	2.758 (.772)	.470	.486
Emotional strengths										
Life satisfaction	32.218 (5.223)	33.077 (5.649)	32.000 (4.796)	.581	.225	30.529 (5.281)	29.647 (7.202)	30.818 (4.342)	.574	.276
Self-efficacy	82.385 (13.175)	85.462 (14.564)	90.375 (12.035)	.124	.354	90.588 (14.410)	87.133 (12.891)	92.458 (14.217)	.255	.510
Social self-efficacy	29.385 (4.874)	31.615 (5.300)	31.750 (4.464)	.007**	.431	32.644 (5.193)	31.563 (4.546)	32.500 (5.161)	.397	.372
Emotional self-efficacy	26.692 (5.603)	27.846 (6.842)	29.375 (3.583)	.271	.347	28.688 (6.008)	27.500 (4.899)	29.350 (4.474)	.263	.680
Academic self-efficacy	26.308 (5.250)	26.000 (5.958)	29.250 (5.258)	.680	.337	29.256 (7.261)	28.071 (7.522)	30.608 (6.266)	.406	.601
Active coping strategies	2.566 (.480)	2.833 (.510)	3.047 (.615)	.064	.001**	2.773 (.591)	2.699 (.641)	2.931 (.302)	.670	.817
Problem-focused coping	2.462 (.578)	2.603 (.639)	3.021 (.704)	.335	.013*	2.651 (.667)	2.578 (.702)	2.736 (.436)	.694	.849
Positive cognitive restructuring	2.670 (.570)	3.064 (.490)	3.073 (.582)	.016*	.007**	2.895 (.567)	2.819 (.644)	3.125 (.300)	.666	.540
Distraction coping strategies	2.298 (.446)	2.510 (.278)	2.406 (.484)	.050	.474	2.334 (.564)	2.210 (.474)	2.300 (.380)	.401	.752
Avoidant coping strategies†	2.635 (.597)	2.724 (.502)	2.656 (.457)	.551	.077	2.525 (.520)	2.632 (.516)	2.667 (.563)	.478	.563
Support seeking coping strategies	2.302 (.824)	2.444 (.630)	2.819 (.819)	.336	.053	2.175 (.675)	2.062 (.745)	2.354 (.639)	.645	.866
Academic performance										
Math	11.565 (2.651)	11.111 (3.100)	11.286 (3.039)	.548	.906	11.357 (3.177)	13.071 (2.056)	12.917 (2.575)	.031*	.034*
Reading	12.250 (2.712)	12.875 (3.563)	12.714 (2.928)	.565	.348	14.417 (1.832)	13.333 (1.875)	13.500 (3.413)	.084	.580

†Scales are reverse scored to reflect the constructs that they are measuring.
p* < .05. (2-sided) *p* < .01. (2-sided)

Next, one-way ANOVAs were conducted to determine whether the two groups of students differed across any of the study variables during either the post-intervention or follow-up periods. Group assignment was entered as the independent variable and all of

the study variables were entered as the dependent variables. No significant differences in any of the variables were found at either of the two follow-up points. Though not significant, differences between students' use of distraction coping strategies neared significance ($p = .053$) at the post-intervention assessment period, with students in the intervention group reporting higher rates of employing these coping strategies than students in the control group.

Finally, results were calculated for each of the three cohorts of students separately in order to determine whether dosage effects emerged. Because of the small number of students who completed the questionnaire packets at the follow-up periods, non-parametric tests were run to examine changes over time among students in both groups at the three schools. However, very few significant results were detected. Paired-samples *t*-tests were also calculated, and surprisingly greater differences emerged, suggesting the strong impact of potential outliers among such a small sample. The findings among students in the intervention group are summarized in Table 4.7. As shown, students who participated in the Girls in Transition program in Cohort 2 experienced the greatest benefits, as demonstrated by reductions in mental health problems and increases in emotional strengths. This is rather surprising, given the fact that the groups only met for four sessions that particular academic school year.

Table 4.7
Paired Samples T-test of Group Changes across Follow-Up Periods by Cohort

Psychological variables	Cohort 1				Cohort 2				Cohort 3		
	T1 M (SD)	T2 M (SD)	T3 M (SD)	<i>p</i> T1-T2 T1-T3	T1 M (SD)	T2 M (SD)	T3 M (SD)	<i>p</i> T1-T2 T1-T3	T1 M (SD)	T2 M (SD)	<i>p</i> T1-T2
Emotional Distress											
Anxiety	10.013 (7.730)	9.173 (8.369)	7.333 (7.090)	.454 .056	8.500 (1.732)	6.500 (3.317)	11.212 (5.059)	.308 .982	21.333 (2.887)	15.000 (4.359)	.019*
Depression	6.167 (3.601)	5.707 (5.011)	6.167 (4.957)	.752 1.000	6.500 (.577)	3.500 (1.000)	8.333 (4.042)	.024* .347	17.667 (2.082)	17.000 (4.000)	.635
Negative mood	2.000 (1.549)	2.167 (1.472)	2.167 (2.229)	.741 .695	2.500 (1.291)	.250 (.500)	2.745 (1.291)	.037* .261	4.000 (1.000)	4.667 (2.887)	.635
Interpersonal problems	.167 (.408)	.500 (.837)	.500 (.837)	.175 .363	.750 (.957)	.750 (.957)	1.022 (1.001)	-- .423	1.333 (.577)	1.667 (1.155)	.742
Ineffectiveness	1.000 (1.095)	1.167 (1.329)	.667 (.817)	.741 .465	1.750 (.500)	2.000 (.000)	2.000 (1.000)	.391 1.000	3.667 (2.517)	3.667 (1.155)	1.000
Anhedonia	2.167 (1.472)	1.190 (.749)	1.833 (1.472)	.128 .530	1.500 (1.000)	.500 (.577)	1.333 (1.528)	.092 .300	6.333 (1.155)	5.333 (1.528)	.225
Negative self-esteem	.833 (.753)	.667 (1.633)	1.000 (1.265)	.822 .695	.000 (.000)	.000 (.000)	1.000 (1.528)	-- .742	2.333 (2.309)	1.667 (1.528)	.529
Hopelessness	2.667 (1.033)	4.198 (2.699)	2.833 (1.169)	.219 .741	2.500 (2.082)	2.750 (2.500)	2.396 (2.114)	.638 .306	4.333 (1.528)	4.083 (1.010)	.580
Body dissatisfaction†	2.700 (.532)	2.667 (.773)	2.625 (.956)	.904 .897	2.667 (.136)	3.333 (.577)	2.750 (.354)	.110 1.000	3.333 (.601)	3.167 (.441)	.803
Emotional strengths											
Life satisfaction	33.833 (4.309)	33.667 (6.121)	33.167 (5.565)	.919 .530	29.708 (7.980)	35.250 (4.113)	29.667 (1.528)	.110 .007**	32.333 (1.155)	29.000 (6.083)	.417
Self-efficacy	91.333 (10.875)	92.1667 (14.372)	91.167 (12.303)	.764 .970	79.000 (11.747)	87.750 (10.178)	88.000 (15.556)	.023* .160	69.000 (2.646)	69.000 (7.000)	1.000
Social self-efficacy	31.500 (3.728)	33.500 (3.834)	31.167 (4.662)	.152 .848	29.500 (5.000)	32.000 (5.716)	33.500 (4.950)	.063 .049*	25.000 (5.292)	27.333 (6.658)	.336
Emotional self-efficacy	29.500 (4.637)	29.167 (6.765)	29.833 (3.920)	.819 .854	26.750 (5.737)	31.250 (3.948)	28.000 (2.828)	.042* .126	21.000 (3.606)	20.667 (6.1101)	.840
Academic self-efficacy	30.333 (3.502)	29.500 (5.891)	30.167 (4.750)	.526 .862	22.750 (4.646)	24.500 (5.067)	26.500 (7.778)	.069 .295	23.000 (3.464)	21.000 (3.000)	.184
Active coping strategies	2.531 (.427)	2.951 (.304)	3.097 (.367)	.074 .002**	2.521 (.657)	2.771 (.664)	2.896 (1.385)	.078 .433	2.694 (.494)	2.681 (.764)	.978
Problem-focused coping	2.458 (.485)	2.778 (.564)	3.097 (.481)	.159 .034*	2.417 (.687)	2.542 (.625)	2.792 (1.473)	.297 .437	2.528 (.835)	2.333 (.928)	.718
Positive cognitive restructuring	2.604 (.668)	3.125 (.332)	3.097 (.367)	.047* .020*	2.625 (.629)	3.000 (.707)	3.000 (1.296)	.037* .430	2.861 (.411)	3.028 (.625)	.774

Table 4.7, continued

P	Cohort 1				Cohort 2				Cohort 3		
	T1 M (SD)	T2 M (SD)	T3 M (SD)	<i>p</i> T1-T2 T1-T3	T1 M (SD)	T2 M (SD)	T3 M (SD)	<i>p</i> T1-T2 T1-T3	T1 M (SD)	T2 M (SD)	<i>p</i> T1-T2
Psychological variables											
Distraction coping strategies	2.342 (.556)	2.588 (.154)	2.483 (.423)	.204 .507	2.356 (.472)	2.294 (.369)	2.175 (.778)	.304 .900	2.133 (.181)	2.642 (.176)	.011*
Non-avoidant coping strategies†	2.319 (.515)	2.708 (.567)	2.569 (.396)	.041* .060	2.625 (.220)	2.583 (.605)	2.917 (.707)	.889 .795	3.278 (.694)	2.944 (.210)	.427
Support seeking coping strategies	2.208 (.473)	2.558 (.416)	2.963 (.420)	.121 .014*	2.706 (.853)	2.419 (.710)	2.388 (1.821)	.317 .939	1.950 (1.374)	2.250 (1.048)	.326
Academic performance											
Math	11.500 (2.739)	11.833 (2.563)	12.167 (2.137)	.679 .530	--	--	--	--	12.000 (4.243)	9.000 (5.657)	.205
Reading	13.400 (2.510)	13.600 (2.702)	12.500 (1.761)	.893 .482	--	--	--	--	11.500 (.707)	14.500 (2.121)	.205

†Scales are reverse scored to reflect the constructs that they are measuring.

p* < .05. (2-sided) *p* < .01. (2-sided)

Students in the wait-list control groups from each of the three cohorts experienced fewer changes in their scores over time. In Cohort 1, students in the control group reported significantly reduced feelings of emotional self-efficacy from baseline to post-intervention ($p = .038$; $r^2 = .483$) and significantly lower levels of negative self-esteem from baseline to six-month follow-up ($p = .021$; $r^2 = .559$). Students in the control group from Cohort 2 did not report any significant differences between the pre- and post-intervention period, though they did report significant decreases in their reported levels of ineffectiveness between baseline and the six-month follow-up ($p = .014$; $r^2 = .900$). No significant effects were detected among the students in the wait-list control group in Cohort 3 between the pre- and post-intervention periods, and data were not collected for students in this cohort at the six-month follow-up period because of scheduling issues at their school. Again, it is important to interpret these results with extreme caution, as the number of students included in each group for these was quite low, ranging from eight to three students per analysis.

Results from the one-way ANOVAs, which examined the differences between the intervention and control group at the two follow-up periods for each of the three cohorts, revealed few significant results. No statistically significant differences emerged between the two groups at either follow-up period among the students in Cohort 1. In Cohort 2, students reported significantly lower levels of depression ($p = .025$) and anhedonia ($p = .011$) and higher levels of life satisfaction ($p = .037$) in the intervention group than students in the wait-list control group at the post-intervention period. Finally, differences in distraction coping skills emerged between students in the intervention and control

group in Cohort 3, with students in the intervention group reporting significantly greater use of these coping strategies than students in the control group at post-intervention ($p = .036$). No differences were detected at the six-month follow-up period for any of the cohorts.

CHAPTER 5

DISCUSSION

Summary of Study Findings

Overall, the findings from this study suggest that both positive and negative mental health variables are associated with school functioning among this particular sample of middle school girls. However, in general, the psychological variables were more strongly correlated with students' beliefs about their academic abilities, rather than with their true performance in school. The results also demonstrate that students from more diverse backgrounds may be at increased risk for these effects.

The findings from the second part of this study also demonstrate some of the positive effects of participating in Girls in Transition, a school-based resiliency group designed for early adolescent girls. Participants reported lower levels of emotional distress and higher levels of emotional strengths following participation. Though many of the effects were not maintained, the coping strategies that students learned through the intervention continued to be relevant to these students six-months after program completion.

Research Question 1

As expected, there were strong correlations between many of the psychological variables included in this study. Most of the measures of students' emotional distress were positively correlated with one another and negatively correlated with the measures

of students' emotional strengths. Likewise, many of the measures of students' emotional strengths were also correlated with one another.

The relationship between the academic measures was somewhat expected. Academic self-efficacy was positively correlated with math and reading scores. Students who reported feeling capable of performing academic behaviors and skills were also more likely to do well on the math and reading tests. This relationship was not detected with scores on the ineffectiveness subscale of the CDI, which measures a very similar construct. This suggests that these two measures were both assessing different aspects of students' academic beliefs. The academic self-efficacy subscale was designed to assess students' beliefs about their academic abilities. Items on this scale ask them to determine how well they can perform certain school-related behaviors, such as study for a test and ask teachers for help. In contrast, the ineffectiveness subscale of the CDI was designed to reflect students' negative evaluation of their school performance as well as other abilities. Some of the items on this scale look directly at students' evaluations of their academic abilities, such as whether they believe they are doing well in school and if schoolwork is challenging for them. Other items are more global, such as whether they think they do most things well or if it is difficult for them to remember things. With this in mind, it is then less surprising that the academic self-efficacy scale was more closely aligned with students' actual academic performance than the ineffectiveness scale, since it was also measuring their abilities in other areas besides just school.

When examining the relationship between the psychological variables and academic performance, an interesting pattern emerged. Although many of the psychological variables had significant correlations with the subjective measures of

academic performance (academic self-efficacy and effectiveness), fewer connections were detected between the psychological variables and scores on the math and reading tests. Students' beliefs about their academic capabilities were positively correlated with their symptoms of emotional distress and negatively correlated with their levels of emotional strengths, with many variables having medium to large effect sizes. Furthermore, students reporting elevated levels of mental health concerns were more likely to report negative beliefs about their academic skills than students who reported average or low levels of symptoms. The findings from this study not only confirm the research on the deleterious effects of psychological distress amongst early adolescents, but also align with the positive psychology research that suggests that emotional strengths can provide valuable benefits for students as well.

However, the relationship between the psychological variables and students' actual performance on the math and reading tests was less pronounced. When comparing students based on their scores on the math and reading tests, very few differences were detected across the low, medium, and high academic scorers. Furthermore, the results from the regressions found that students' reports on the psychological variables were not able to significantly predict their academic performance. These findings show that the relationship between the psychological variables and academic performance, as measured in this study, was less strong than the relationship between the psychological variables and students' beliefs about their academic performance. Students who felt more anxious, depressed, and hopeless were more likely to hold negative evaluations about their academic abilities than their more healthy peers. However, for the most part, they were no more likely to actually be performing worse than their peers. Similarly, students who

reported being more happy and holding higher self-evaluations were also no more likely to perform better than their peers.

The fact that only the subjective measures of academics were correlated with the psychological variables was rather surprising. There are several possible explanations for these unanticipated findings. First, it is possible that the potential impact of poor mental health on academic achievement may take more time to detect. In this study, there was a significant relationship (medium effect size) between students' reported levels of self-efficacy and their performance on the math and reading tests. Therefore, these findings may suggest that when students experience psychological distress or low levels of strengths, their functioning may first impact their beliefs about their academic abilities. Then, as students internalize these beliefs, their actual performance may also begin to decline. If this is the case, it might be expected that students' academic performance would be more impaired as they got older and the impact of their mental health problems affected their actual performance. However, it is important to keep in mind that correlations were computed to identify relationships between psychological and academic variables, and therefore direction of causation cannot be inferred from this study.

A similar explanation is that a stronger relationship between the psychological variables and students' test scores might have emerged had the current sample included a greater number of students exhibiting elevated levels of mental health problems or very low emotional strengths. Because this study was conducted in a naturalistic setting, students were not screened beforehand to determine eligibility. Therefore, this sample reflected a normative student population within these two schools. Furthermore, because the students in this sample were early adolescent girls, they were only starting to

transition to adolescence. Given the vast literature on adolescents' increased risk for mental health problems, it is likely that these students' risk would increase over the next few years. For example, in Hankin and colleagues' (1998) seminal study, risk for depression, particularly among girls, increased dramatically between the ages of 15 and 18. It is therefore possible that, as their risk for mental health problems increased, the impact of their psychological functioning would have expanded. Specifically, it might be expected that as students' mental health declines when they are older, it would not only impact students' beliefs about their academic abilities, but their true performance as well.

Although this explanation is plausible, it is unlikely to fully explain the pattern of relationships detected in this study. The rate of elevated psychological distress among this sample was comparable with that found in previous research (e.g. Kessler et al., 2012; Merikangas et al., 2010). For example, nearly 18% of students in this sample reported clinically relevant scores on the CDI, indicating elevated levels of depressive symptoms. In Hankin and colleagues' (1998) study, they found that only approximately 7% of females had experienced a depressive episode by 15 years old. Making a true comparison between the current study and Hankin and colleagues' study is not entirely appropriate, as their study used diagnostic measures to determine adolescents' feelings of depression in contrast to a symptom checklist that was used in the current study. However, it does appear as though there were at least the expected number of students reporting elevated symptoms of distress within this sample.

Another interpretation of these results is that some students may be more likely to interpret their academic performance as low, whether or not that is actually the case. There is currently a trend in the United States where parents and educators provide praise

to students regardless of their actual performance or abilities, which may lead students to have difficulty evaluating their actual skills. Therefore, it may be that some of the students in this sample have difficulty interpreting their academic performance, and feel negatively about their abilities without evidence to support or refute these beliefs. These feelings may lead them to be more depressed/anxious/hopeless and feel less positive. In turn, this could ultimately impact their performance as well, creating a self-fulfilling prophecy. Again, although this explanation is plausible, the fact that students' scores on the math and reading tests were significantly correlated with their levels of academic self-efficacy suggests that this explanation is not entirely accurate.

Finally, it is also possible that the objective measures used in this study, the math and reading tests, were not appropriate measures of academic performance for this study. One of the goals of this study was to determine whether CBA's, which are typically used to monitor student progress in response to academic interventions, might be an appropriate tool to use in other capacities. Though previous research has found these particular measures to be correlated with performance on end of the year state test scores (Anderson, Alonzo, & Tindal, 2011), there is reason to believe that they were not valid indices of student performance among this particular sample. Surprisingly, the mean scores on the math and reading tests at both schools were lower than anticipated given the academic rigor of both schools. School 1, which is a private school, requires students to demonstrate strong academic achievement in order to get accepted into the school. Though School 2 is a public school and does not have acceptance standards, end of the year test scores indicate that students at this school typically perform better than students from other schools in the state. Given all of this, it would be expected that students'

scores on the math and reading tests would be above average. However, students' mean scores were in the average range and below. These findings suggest that the academic measures used in this study might not have accurately identified students' true academic abilities, which likely impacted the results of this study. However, it is also possible that students who self-selected to participate in the study may have also been students who were struggling in school.

There are several possible explanations why these measures produced unanticipated results. Curriculum-based assessments are designed to assess students' ability to complete grade-level curricular material. An underlying assumption is that what is reflected on an assessment is closely aligned to what is being taught in school. These particular assessment measures were developed by researchers at the University of Oregon and were intended to reflect the state's grade-level standards. Given the fact that the students in this sample were not educated in Oregon public schools, it is possible that the measures did not accurately reflect the skills that were being taught in these students' classes. This is particularly likely among the students at School 1, who attended a private school, where teachers have greater flexibility in what they teach their students.

Additionally, because these tests were administered within the context of a fun and optional program designed for girls, and not in an academic context, students may not have put forth as much effort on these tests as they might have had they been presented in a different context. To help make students more comfortable during the assessment periods, pizza and snacks were offered to the students and occasionally music was played. Although these efforts may have made the assessment periods more enjoyable for students, they may have also served as a distraction and resulted in students not taking the

tests as seriously as they might have if they were administered by a teacher in an academic subject.

School Differences

Differences between the two schools were also examined in this study. The students at the two schools differed from each other in several important ways. First, although demographic information of study participants was not collected, the demographics at the two schools suggest that the students were likely to come from very different backgrounds. At School 1, which was an elite private school, a majority of the students came from White, upper-middle class homes. In contrast, School 2, which was a larger public school, served a more racially and economically diverse community. Although participant demographics were unavailable, it is reasonable to conclude that the student populations at these two schools were reflective of the larger school, and quite different from one another.

Furthermore, students' scores on the study variables demonstrate significant differences in their psychological and academic functioning across the two schools. Students at School 1 were more likely to report low levels of psychological distress and high levels of emotional strengths than students at School 2. Additionally, students at the two schools differed in their scores on the math and reading tests, with more high scoring students attending School 1 and low scoring students attending School 2.

Finally, the students at the two schools also differed in their level of homogeneity. At School 1, there was very little variance in students' scores on the mental health variables. With the exception of one outlier, all of the students at School 1 reported

scores within the normative range on the anxiety, depression, and hopelessness scales. At School 2, there was greater variance in students' scores. Additionally, a larger number of students at School 2 reported clinically elevated scores on the measures of psychological distress. These findings suggest that in addition to greater racial and economic diversity, students at School 2 also demonstrated greater diversity in their psychological functioning.

When the Pearson correlations were rerun at each of the two schools, the results varied considerably. At School 1, very few significant relationships were detected between the variables. This is perhaps not surprising given the low variance in scores at this school. A greater number of the psychological variables were significantly correlated with academic measures at School 2. At both schools, fewer variables were correlated with test scores than they were correlated with the subjective measures, which is similar to what was found in the combined analyses. Again, it is hypothesized that over time, as mental health functioning continues to decline, students' academic performance may be impacted as well. Furthermore, the tests used in this study may not have adequately evaluated all aspects of students' academic functioning, causing a reduction in significance.

Taking school demographic data into consideration with these findings, it appears that academic functioning may be more closely tied to psychological functioning for racially and economically diverse students. The fact that very few significant relationships emerged at the school serving mostly White, upper-middle class students, suggests that these things are not closely related among this population of students. Though Luthar and D'Avanzo's (1999) and Luthar and Becker's (2002) research would

have anticipated that these students would be at increased risk for mental health problems as a result of their affluent backgrounds, this was not the case among the current sample. Instead, these students presented as psychologically healthy individuals. One possible reason why students in this sample were less distressed than in previous research is that there is a high level of family involvement expected from parents at this particular private school. Luthar and Latendresse's (2005) work found that one of the risk factors for affluent teens is feeling isolated from their parents. Perhaps parents' high level of involvement in the school community reduced students' risk for poor outcomes.

It is important to take into consideration the fact that the data from one student who was considered to be an outlier were removed for this analysis. Though most students at this school were doing just fine, there was at least one student who reported struggling. She reported clinically relevant symptoms of anxiety and relatively elevated levels of depression. Though a few of her peers reported relatively elevated levels of symptoms, she was the only student in the clinically significant range on any of the measures. Although the results at School 1 suggest that, for the most part, the students are well adjusted, it is important to consider the experience of students who are not as well adjusted and may as a result also feel like an outsider.

At School 2, which is a more demographically representative sample of students similar to those at other public schools across the United States, mental health variables were more closely related to their academic functioning. As previously stated, strong relationships were detected between several of the psychological variables and students' beliefs about their academic abilities, though very few significant relationships were identified between the psychological variables and their true performance. The findings at

School 2 confirm the results from the combined group analyses, suggesting that students' psychological functioning and their beliefs about their academic abilities are closely related.

Research Question 2

Results from the second research question showed that students who participated in the Girls in Transition program were more likely to report improvements in their psychological functioning than students who did not participate in the program. Specifically, immediately following program completion, participants reported increased use of active coping strategies, higher levels of social self-efficacy, and lower levels of anhedonia and anxiety. Although many of these effects disappeared by the six-month follow-up period, their use of active coping strategies persisted. The improvements in participants' use of active coping strategies is not surprising given that the focus of the intervention was to help students identify more effective ways to think about and respond to stressful everyday life events. The fact that these improvements persisted and even increased through the six-month follow-up period suggests that the intervention may have helped students internalize these new coping strategies. These results are particularly encouraging since changes could be detected despite having a very small sample.

Because the Girls in Transition program is designed to reduce and/or prevent symptoms of depression, it was hypothesized that participants would experience reductions in many of the areas related to depression, not just anhedonia. Though depression scores did decrease over time, these changes were not statistically significant. This could be the result of several factors. First, given the small sample size included in

this study, significant power may not have been achieved to accurately identify significant differences. Additionally, because there was high variance in students' scores on the depression scale, this reduced the statistical strength of students' reported reductions in symptoms. Furthermore, previous research has found anxiety to be a precursor to depressive symptoms (Rice, van den Bree, & Thapar, 2004). Given participants' decreases in symptoms of anxiety, it is possible that improvements in depression might have followed had effects been stronger. Finally, in the current study, there was not that much room for growth, as a majority of the students presented at baseline as mentally well-adjusted youth. As Stice and colleagues' (2009) meta-analytic review of youth depression programs discussed, intervention effects tend to be strongest when administered to targeted populations at increased risk for or already experiencing mental health problems. Had the intervention targeted more distressed youth, it is possible that greater intervention effects might have been detected.

One of the major hypotheses of this study was that participation in the Girls in Transition program would be associated with students' academic improvements. This was not the case with the current sample. Among the students in the intervention group, math and reading scores remained relatively stable across the three assessment periods. Though there was reason to believe that students might experience academic benefits as a result of participation, the lack of improvements are not entirely surprising. First, it is important to remember that although the Girls in Transition program did discuss ways for students to cope with academic stress and difficulties more appropriately, it did not directly address academic skills or strategies. Therefore, because statistically significant primary intervention effects, such as reductions in anxiety and depression, were not

detected, it is not surprising that the hypothesized secondary effects did not emerge. In other words, because students' levels of anxiety and depression did not significantly decline, there is little reason to expect their academic performance to change. Furthermore, even if stronger effects had been observed, the impact it might have on their academic skills may have taken longer to detect than the current study procedures allowed for. Additionally, as previously discussed, the validity of students' scores on these tests is somewhat questionable, given the relatively low scores participants received despite attending academic rigorous schools.

Scores on many of the study variables remained stable among students in the wait-list control group, as expected. However, students in the control group did report lower levels of hopelessness at the post-intervention follow-up than they did at baseline, though these differences did not quite reach statistical significance with all tests (small to medium effect size). These improvements were unanticipated in the absence of intervention. Though a possible hypothesis for these differences might be a result of attrition, results became stronger when only students who completed follow-up data were analyzed. Instead, other explanations can be provided. First, other confounding factors may have impacted students' reports. It is possible that students in the control group participated in some other intervention outside of the study that helped impact their attitudes. Similarly, life circumstances may have improved for certain individuals, improving their outlook on their lives. Given the small sample size included in this study, improvements in only one or two students might have significantly altered the results for the entire group. Although the improvements among students in the control group were

unanticipated, their mean score at follow-up was not statistically different than the mean score of students in the intervention group at either follow-up period.

Students in the wait-list control group also earned significantly higher scores on the math test at the two follow-up periods than they did at baseline. The reason for these improvements is not entirely clear. When results were analyzed among the three cohorts separately, these differences disappeared, making it impossible to identify whether these improvements might have been a result of more effective math instruction at one of the schools. Again, as previously discussed, the validity of the academic measures has been called into question given the relatively low scores of the students included in this sample, despite the high achievement of students from both schools. Additionally, it is possible that other extraneous factors might be confounding these results, such as particular students in the wait-list control group receiving academic support in math. Finally, because of difficulty getting a hold of students at School 2 to collect follow-up data, many students were not included in follow-up analyses. Of those who were included, many were evaluated over the phone, making their completing the academic measures not possible. As a result, the sample size on the academic measures was even smaller than for analyses with other variables. The sample size of both groups decreased substantially. It is therefore very possible that the small sample size and high attrition impacted these results, particularly if one or more students in the control group received any academic supports during this time.

When examining whether group differences emerged at either of the follow-up periods, no significant differences were detected, which was rather surprising, particularly given the improvements detected among students in the intervention group

after completing the intervention. It was expected that students in the intervention group would have reported lower levels of emotional distress and higher levels of emotional strengths than students in the control group. Furthermore, it was also predicted that students in the intervention group would have outperformed their peers on the math and reading tests. The lack of significant findings indicates that intervention effects were not as strong as initially anticipated. This is likely a result of the small sample included in this study, making it difficult to detect group differences. Additionally, previous research on the Penn Resiliency Program suggests that intervention effects do not always emerge immediately. In fact, in the initial evaluation study of the program, differences between the two groups were not detected until the 12-month follow-up period, with effects increasing through a 24-month follow-up (Gillham et al., 1995). With this in mind, the lack of significant differences between the two groups is not all that surprising, particularly given the small sample size included in this study.

Finally, cohort effects were examined in order to determine whether features specific to each cohort, such as length of treatment, impacted results. Unfortunately, due to the very small sample in each of the groups for these analyses, it is difficult to generalize results. Surprisingly, although students in the intervention group in Cohort 2 only met for four sessions, they did report experiencing significant benefits after program termination. These results suggest that even in small doses, the Girls in Transition program might provide benefit to participants. However, fewer benefits were detected among students in the two other cohorts, which met for more sessions than did Cohort 2. In order to understand these results, it is important to consider certain factors about the other two cohorts, such as demographic characteristics and sample size. Cohort 1

comprised students from School 1. As previously discussed, the students at this school reported very few mental health problems at baseline. The lack of improvement these students demonstrated in most aspects of psychological functioning is therefore not particularly surprising, given that they had very little room for improvement. Students in Cohort 3, which consisted of students from School 2, the school with more variance in students' scores, also did not report many changes over time, despite meeting for nine or ten sessions. However, three students were included in these analyses, and because of missing data, on some measures only one or two students were included. Therefore, these results should be interpreted with extreme caution.

One of the ways to understand some of these unexpected findings detected in this study is to consider the challenges in applying the intervention in real-world conditions. Unexpected situations arose in the midst of conducting this study that methodologically impacted this study. As a result of district-level turbulence and administrative transitions transpiring at some schools, recruitment procedures were unable to take place, severely limiting the sample size and diversity. Within the two schools included in the study, scheduling conflicts and building maintenance also posed considerable barriers, resulting in high attrition rates and incomplete data collection. While these obstacles significantly limited the internal validity of the current study, they also help demonstrate the challenges that researchers face when implementing interventions in real-world settings such as schools. Though the study methods may have been limited due to these circumstances, the results are perhaps more meaningful since the research was conducted in a natural setting instead of a contrived research setting.

Implications

The results of this study have important implications for practice. First, the fact that students' psychological functioning was highly correlated with their beliefs about their academic capabilities indicates that efforts to identify students who are struggling, either academic or emotionally, are important to determine whether they are also experiencing difficulties in other areas as well. Because students experiencing symptoms of internalizing problems, such as anxiety and depression, are less likely to be identified by teachers and parents than their more disruptive peers, these findings may be particularly relevant. Additionally, it is important to identify whether students' beliefs about their academic abilities are low, and intervene accordingly, as this may precede actual academic decline. However, because the study results were obtained through correlations, the direction of impact between the psychological and academic variables could not be determined. Given the relationships detected between students' psychological functioning and their beliefs about their academic abilities, as well as their beliefs and their true abilities, it is evident that these aspects of functioning are interrelated. Therefore, understanding the scope of the challenges that students face is essential.

These results also demonstrate the importance of understanding and promoting students' strengths. Though mental health status is often considered along a continuum, with mentally distressed individuals on one side and mentally content or even happy individuals on the other end, evidence suggests that an individual's mental health may reflect aspects of their experienced levels of distress and strengths (e.g. Suldo & Shaffer, 2008). The findings from this study demonstrate the relationship between both aspects of emotional functioning, symptoms of distress and signs of strengths, as being related to

students' academic functioning. Therefore, it is important for schools to better understand not only the challenges that their students face, but also the strengths that they possess. Though causation cannot be inferred through this study, results showed that students who possessed these strengths scored higher on academic tests. It is therefore possible that efforts towards enhancing such strengths may result in improvements in academic functioning. Additional research is needed, however, to confirm this result.

The relationship between mental health factors and academics was particularly strong at School 2, where there was more diversity in terms of student demographics as well as their scores on the psychological variables. Because of the greater variability among these students, it was easier to see the relationship between the psychological and academic variables. Because the demographics at School 2 were more similar to those at other schools across the United States, the results from this school may be particularly relevant. However, given the small sample of students at each school, more research is needed to confirm these results. It is also important for practitioners to take into consideration the experience of students who may be outliers at schools similar to School 1, and to ensure that appropriate services are in place for these students who are not only experiencing distress, but may also feel like an outsider or feel alone.

As a result of legislative mandates such as *No Child Left Behind*, schools are facing increased pressure to raise student performance. In some districts, "non-essential" activities, such as art and music, are being reduced or cut from students' schedules to allow for more time for math and reading instruction. There is no doubt that increasing student achievement is an important goal for all schools. But schools should also be committed to promoting student growth in other areas besides just academics. The

National Association of School Psychology's Practice Model outlines the implementation of "Interventions and mental health services to develop social and life skills" as an important function of a practicing school psychologist (NASP, 2010). Simply because this study did not find there to be direct academic benefits to participation in the Girls in Transition intervention does not mean that the program is not worthwhile. Improvements in students' psychological functioning should remain a priority for school staff and should not get obscured by academic pressures. Students receiving the intervention did experience some benefits in their emotional functioning as a result of participation, suggesting that this intervention can help promote positive student development in schools.

Limitations

There are several limitations to this study. First, the number of participants included in this study posed numerous problems. Because this was an intervention study with programs being implemented in school settings rather than research facilities, it was difficult to find schools that were able to support the activities of the project. As a result, only two schools participated in this study, resulting in a limited sample size. Due to the small sample size, more sophisticated statistical analyses were unable to detect significance. Instead, less sophisticated analyses were calculated, particularly for the second research question, where the sample size was even smaller as a result of high attrition. Furthermore, more in-depth secondary analyses to determine whether the intervention was more effective for particular groups of students were not possible because of the small sample included in this study.

Additionally, due to scheduling conflicts at one of the schools, there were very high rates of attrition among the included sample. Although all students completed baseline questionnaires at the two schools, it was not possible to collect all of the post-intervention and follow-up data at School 2 because of administrative changes and facilities problems. As a result, some of the questionnaires were administered over the phone to students when possible, but academic performance data could not be collected through this method of data collection. Given the differences between the two schools at baseline across nearly all of the study variables, it is likely that the scarcity of follow-up data at School 2 impacted the results that were obtained.

It is also important to recognize that the two schools included in this study are neither representative of all schools in the United States nor homogenous within the study, impacting both the internal and external validity. The first school, a small private school located in a major East Coast city, serves students from predominantly white, middle class backgrounds. The teaching and learning philosophies employed in this school differ from most public schools. The second school, a medium-sized public school located just outside of the city, is somewhat more representative of many other suburban middle schools found in the United States, serving a more diverse student body than the first school. However, because of the significantly different characteristics of the two schools, combining data across students at both schools may have reduced the study's internal validity.

Furthermore, there may have been a selection bias in the students and parents who chose to participate in the study. Recruitment was done predominantly through parents, and it is possible that certain parents, perhaps those who were more concerned about their

daughters' adjustment and well-being, were more likely to enroll their daughters in the study than those who were less concerned about these areas. As a result, the findings from this study are not generalizable to all middle school girls.

The outcome measures used in this study from easyCBM.org may not have been ideal indices of student performance. Given many of the unanticipated results associated with students' math and reading scores, it is possible that these tests were not the most appropriate assessment measures to use with this population. Specifically, the different tests used at the three assessment periods may not have been entirely equivalent, perhaps minimizing intervention effects. Furthermore, it is also possible that the 7th and 8th grade tests were not equally as challenging, therefore making an aggregation of the data inappropriate. This study might have been stronger if the easyCBM.org data were supplemented with other school-based indices of academic performance and/or behavior, such as students' grade point averages, state test scores, or number of office discipline referrals. While the inclusion of curriculum-based assessments was a unique focus of this study, including other measures of academic performance may have strengthened the results. Unfortunately, additional information on student performance was not available due to the increased burden it would have placed on the schools to collect that information. Furthermore, because School 1 was a private school, students do not take the same state tests that students do at School 2. For these reasons, only the materials from easyCBM.org were used as objective measures of students' academic performance.

Baseline questionnaires were also administered at different times during the academic year across the two schools. Because scores on the academic assessments are expected to rise over the course of an academic year, it would be expected that the

students at School 2, who took the assessments later in the school year than students at School 1, would have earned higher scores on the academic measures than the students at School 1. This was not the case, however, as the baseline scores at the two scores were statistically equivalent.

The validity of several of the students' academic data at baseline was also called into question. At least two of the students at School 2 used a calculator on the math section, as the group leaders were unaware of the test administration procedures. Furthermore, one student was observed rushing through the math and reading assessments and therefore her performance on these two tests do not reflect her true abilities. Finally, one student was identified as being cognitively delayed, and her academic data were called into question as well. All statistical analyses were computed with and without the data of these four students. Although the results were often quite similar, because of the small sample included in this study, the exclusion of their data did sometimes impact the results slightly. However, because of the already small sample size and naturalistic nature of this study, where inclusion of all students was expected, these students' data were still included in the study.

Another issue was possible intervention dosage effects. Factors specific to the intervention, including group size and the length and duration of the intervention, varied across the three intervention groups. Groups ranged from two to six students, lasted for 50-80 minutes a week, and met for four to ten sessions. Because of the small sample size included in this study, it was difficult to determine whether there were dosage or group effects across the three different intervention groups.

Finally, had the follow-up period been extended beyond six-months, it is possible that stronger intervention effects may have been detected. Although no studies have been published on the Girls in Transition program, research from original intervention (the Penn Resiliency Program) demonstrates that intervention effects may increase over time (Gillham et al., 1995). Extending the follow-up period was not possible for this study, as all students in the wait-list control group would have transitioned to high school before they were offered the opportunity to participate in the program.

Future Research

The first part of this study was an exploratory analysis of the relationship between students' reported levels of mental health problems, emotional strengths, and their academic performance and beliefs. Future work should continue investigating the relationship between these variables among different populations of adolescents. Specifically, because this study found that the results differed across the two schools, future work should examine this in greater depth by working with students from high, medium, and low SES backgrounds and with greater racial diversity. Furthermore, including additional academic measures would allow for a greater examination of what specific aspects of academic performance is associated with emotional distress as well as emotional strengths. Future studies may also want to explore the relationship between the psychological variables and students' cumulative or subject by subject GPA, performance on end of the year test results, responses on student stress surveys, or teacher ratings of students' abilities in addition to the academic measures used in this study. Additionally, the utility of curriculum-based assessments as tools outside of an academic context needs

further examination, such as potential outcome measures for studies examining mental health factors.

This research was also intended as a pilot study for the Girls in Transition program. To date, there are currently no published articles examining the effects of this intervention. A majority of the previous research on the Penn Resiliency Program has focused on students from affluent backgrounds, though some work has examined the program's effects in urban school settings (Cardemil et al., 2002). Goals of the current study were to explore the feasibility of implementing the intervention in two different school settings, to assess whether it was effective in decreasing mental health problems and increasing emotional strengths, and to identify whether there were any secondary academic benefits associated with participation in the program. Future work should continue to explore the feasibility and effectiveness of this intervention in the school setting, considering factors such as length of treatment, duration of follow-up, and group size and cohesion. In addition, future work should seek to identify whether the intervention is also effective when offered in schools serving students from racially diverse and/or low-income backgrounds, and how the program may be appropriately adapted to meet the unique needs of these students. Examining additional aspects of school functioning, such as school connectedness as well as other academic outcome measures, is also warranted.

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