

ACADEMIC ACHIEVEMENT OUTCOMES FOR ADOLESCENTS WITH DEPRESSION
UNDERGOING A COMPREHENSIVE GROUP INTERVENTION
FOR EMOTIONAL RESILIENCY

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A thesis submitted in partial fulfillment of
the requirements for the degree of
Master of Arts

Department of Psychology

Central Michigan University
Mount Pleasant, Michigan
June 2013

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ACKNOWLEDGEMENTS

I would like to extend my sincerest thanks to my thesis advisor and committee chair, Dr. Timothy Hartshorne, for his sustained support and professional guidance throughout the process of completing this project; he offered much-needed encouragement in the true Adlerian sense of the word. I am also grateful to Dr. Sandra Morgan and Dr. Renee Babcock for their invaluable input, help, and generous giving of their time.

ABSTRACT

ACADEMIC ACHIEVEMENT OUTCOMES FOR ADOLESCENTS WITH DEPRESSION UNDERGOING A COMPREHENSIVE GROUP INTERVENTION FOR EMOTIONAL RESILIENCY

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Recent estimates indicate that the vast majority of children and adolescents who are treated for depression receive these services through the schools. At the same time, interventions for these students depend largely on Federal funding in accordance to the Individuals with Disabilities Education Act (IDEA-Part B), which requires the schools to demonstrate how a serious emotional disturbance such as depression “adversely affects educational performance.” This strongly implies that services rendered to students, beyond fostering potential improvement in psychological and behavioral functioning, must yield demonstrable academic gains. In recent years, a few select cognitive-behavioral group interventions have been developed to treat depression in children and adolescents, programs that are appropriate for the school setting. However, there is a marked dearth of research examining whether such programs also foster an increase in academic achievement. In response to these issues, this study examined one such program, the *Strong Teens Program: A Social-Emotional Learning Curriculum for Students in Grades 9-12*, to determine whether participation in the group intervention would result in increased academic achievement, as well as decreased levels of depression, for individual students.

Four high school students participated in the program, attending sessions twice a week for six weeks. In addition, a group of four students met to discuss “current events”; a third control group did not have any contact with the examiner. Academic progress was monitored throughout this period for students in each of the three groups, and pre- and post-test measures of

depression were obtained as well. Although each of the four students in the *Strong Teens* group displayed slight gains in academic achievement, these increases were not sufficient to support the effectiveness of the program for adolescents with depression; moreover, some students in the comparison and control conditions exhibited greater improvements in performance.

Furthermore, levels of overall depression and depressed mood did not decrease for the treatment group. Limitations in the study and small improvements in academic achievement highlight a need for further research on the efficacy of the *Strong Teens* program as an intervention that sufficiently serves the needs of students, satisfies the legal requirements of IDEA, and justifies the time and resources available to implement the program.

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CHAPTER I

INTRODUCTION

Recent trends in the delivery of mental health services reflect a shifting of the societal burden onto the schools. It is estimated that 70% to 80% of children who are treated for emotional or behavioral disorders receive these services through the educational system (Burns et al., 1995; Ringeisen, Henderson, & Hoagwood, 2003). Thus, the school is the sole provider of mental health services for many children (Hoagwood, Burns, Kiser, Ringeisen, & Schoenwald, 2001). In considering the prevalence of children and adolescents who meet the criteria for depressive disorders – between 5% and 10% of school-age children from fourth grade through high school (Stark, 1990; Stark, Sommer, Bowen, Goetz, Doxey, & Vaughn, 1997) – the magnitude of this responsibility can be more fully appreciated.

In the process of managing this great social task, schools must also comply with federal guidelines under the Individuals with Disabilities Education Act (IDEA-Part B), guidelines that dictate funding for special education programs, including those that address the needs of students with depressive disorders (Jacob & Hartshorne, 2007; Reschly, 2000). In order for students with depressive disorders to qualify for services, they must meet the criteria specified by IDEA under the general category of “serious emotional disturbance.”

Serious emotional disturbance, according to IDEA, refers to an impairment that “adversely affects educational performance” and includes one or more of the following:

1. An inability to learn that cannot be explained by intellectual, sensory, or health factors.
2. An inability to build or maintain satisfactory interpersonal relationships with peers and teachers.
3. Inappropriate types of behavior or feelings under normal circumstances.
4. A general pervasive mood of unhappiness or depression.
5. A tendency to develop physical symptoms or fears associated with personal or school problems.

The term “emotional disturbance,” under IDEA includes schizophrenia; however, it does not include children and adolescents determined to be “social maladjusted,” unless they also meet the above criteria.

Psychometrically sound instruments for objective personality assessment, such as the *Achenbach System of Empirically Based Assessment* (ASEBA) (Achenbach, 1991) the *Behavior Assessment System for Children – Second Edition* (BASC-2) (Reynolds & Kamphaus, 2004), have shown themselves to be a valuable component in assessing children in the school setting (Flanagan, 1995; McConaughy, 2001; Merenda, 1996; Merydith, 2001; Sandoval & Echandia, 1994) and in addressing the multiple criteria outlined by IDEA (Flanagan, 1995). Yet the necessity of demonstrating how a serious emotional disturbance such as depression “adversely affects educational performance” has been problematic. IDEA offers little direction on this point, leaving the schools to figure out how to address the issue. If a student meets the eligibility requirements for a severe emotional disturbance, how can it be shown that this disturbance “adversely effects educational performance” or produces “an inability to learn”? And as school psychologists move from assessment to intervention, how can they determine the effectiveness of psychological and behavioral interventions in improving academic outcomes for students?

Given that the primary purpose of schools is to stimulate the learning of its students, it is incumbent upon them to insure that all school-based programs, including those providing intervention for depression, serve that end. The challenges offered by IDEA create an additional urgency to establish the connection between improved affective/ behavioral functioning and school achievement. Stark and his colleagues (1997) described the situation more bluntly: “To qualify for psychological and related services in the schools, a child must demonstrate an

academic need” (p. 349). Furthermore, with the increased attention to accountability, avoiding this issue may no longer be an option.

In light of these important considerations, schools have the following responsibilities in serving the needs of students suffering from depressive disorders:

1. Providing treatment with proven effectiveness, a treatment that is appropriate and practical within the school setting
2. Monitoring and documenting the progress of treatment in terms of improved behavioral and emotional functioning
3. Demonstrating that the selected treatment also leads to favorable academic outcomes, more specifically, improved educational performance
4. Choosing appropriate indicators to monitor improvement in academic functioning, indicators that are sensitive to incremental changes over relatively short periods of time (at fixed intervals during a semester or school year, for example)

The purpose of the current study is three-fold and grows out of the need to address these obligations. This study seeks to determine the effectiveness of a brief comprehensive program teaching coping skills, social competence, and emotional resiliency to adolescents with depression, in this case, the *Strong Teens Program: A Social-Emotional Learning Curriculum for Students in Grades 9-12* (Oregon Resiliency Project, University of Oregon, 2004). First and foremost, it examines the program’s effectiveness in improving academic performance for these students. Second, the study examines whether this program leads to improved behavioral and psychological functioning. Finally, this study will survey practical indicators that hold promise for assessing achievement outcomes for students participating in school-based interventions for depression and other affective disorders.

CHAPTER II

REVIEW OF LITERATURE

Depressive Disorders in Adolescents

Our current understanding of childhood and adolescent depression, an understanding that has increased dramatically over the last 15 years, has largely been an outgrowth of the tremendous body of research amassed on adult depression (Carlson & Kashani, 1988; Kazdin & Marciano, 1998). A comprehensive review of the vast number of studies dealing with the prevalence, diagnosis, etiology, onset and course, models, and treatment of depression in adolescence is beyond the scope of the current discussion; however, it is possible to highlight current key findings that characterize the present conceptualization of the disorder for this age group.

Any discussion of depression invariably begins with a distinction between depression as a symptom and depression as a syndrome (Carlson & Cantwell, 1980; Kazdin & Marciano, 1998; Kovacs, 1989; Stark et al., 1997). Depression as a symptom refers to the affective component that most people associate with “depression,” namely, a mood of sadness or unhappiness that occurs frequently or for long periods during an individual’s life. It can be a response to environmental stressors and does not necessarily point to the existence of a psychological disorder (Cantwell, 1990; Stark et al., 1997). Depression as a syndrome, on the other hand, is a broader construct, denoting a collection of related behaviors, emotions, or individual symptoms that co-occur. An individual experiencing depression as a syndrome may display a persistent mood of sadness, accompanied by other disturbances in cognition, behavior, emotional state, physiological functioning, and/or motivation.

The *Diagnostic and Statistical Manual of Mental Disorders* is widely considered the golden standard for characterizing depression. The text revision of the fourth edition (DSM-IV-TR, American Psychiatric Association, 2000), has provided this standard for diagnosing depression for 13 years, generating a comprehensive definition of depression as a syndrome – or *disorder* – under the heading of Major Depressive Disorder. The recent release of the *Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition* (DSM-V) - has preserved the essential diagnostic criteria of its predecessor for identifying major depression. The main features of the DSM system are the specification of multiple criteria, usually representing individual symptoms, along with temporal considerations involving the coexistence of different symptoms over a minimum length of time (Stark et al., 1997). The following set of criteria define the existence of a major depressive disorder in terms of five or more symptoms co-occurring for a period of at least two weeks, with at least one of the symptoms including a sad or depressed mood, or “loss of interest or pleasure” (DSM-IV-TR, 2000, p. 356):

1. Depressed mood most of the day and usually every day (in children and adolescents, may be an irritable mood)
2. Diminished interest or pleasure in life activities
3. Significant (5%) weight gain or loss (in children, this may include the failure to make expected weight gains)
4. Insomnia or hypersomnia (nearly every day)
5. Psychomotor agitation or retardation
6. Fatigue or loss of energy
7. Feelings of worthlessness or excessive guilt
8. Diminished ability to think or concentrate, or indecisiveness
9. Recurrent thoughts of death or suicide (with or without a specific plan)

Prior to the release of DSM-V, within the DSM-IV-TR classification, in addition to Major Depressive Disorder (296xx), the general category of Depressive Disorders also included Dysthymic Disorder (300.4) and Depressive Disorder, Not Otherwise Specified (311). In DSM-IV-TR, Dysthymic Disorder was considered as similar to yet distinct from Major Depressive

Disorder, differing primarily in that it is less episodic in nature, characterized by symptoms that while more chronic are less severe.

Under the previous diagnostic characterization of Dysthymic Disorder, children must display an irritable or depressed mood for at least one year and must exhibit two or more of the following symptoms: poor appetite or overeating, insomnia or hypersomnia, low energy or fatigue, low self-esteem, poor concentration or indecisiveness, or feelings of hopelessness (DSM-IV-TR, 2000). Contributors to the DSM-IV-TR pointed to a fundamental difficulty in differentiating between the two disorders for purposes of diagnosis and treatment, noting that “the two disorders share similar symptoms and that the differences between them in onset, duration, persistence, and severity are not easy to evaluate retrospectively” (p. 379). These difficulties in differentiation were encountered in research as well. As Oswald and Mazefsky (2006) have noted, “Research on the treatment of child and adolescent depression typically has not distinguished clearly among subtypes of depression” (p. 440). To address these difficulties, DSM-V subsumes chronic major depression and dysthymic disorder under the new classification “Persistent Depressive Disorder.”

Within the DSM-IV-TR system, Depressive Disorders Not Otherwise Specified referred to a condition that included clinical features that do not meet criteria for major depression, dysthymia, or other disorders. A significant change in the DSM-V is the addition of Disruptive Mood Dysregulation Disorder, which replaces “childhood bipolar disorder,” characterized by persistent irritability and frequent episodes of extreme, out-of-control behavior. DSM-V also introduces the new classification “Premenstrual Dysphoric Disorder.”

Prevalence

Prevalence rates for childhood and adolescent depression vary widely from study to study. Angold and Costello (2000) presented the prevalence rates reported for 35 epidemiological studies, studies based on community samples and using DSM criteria. Among these studies, rates of depression included the percentage of youth who had suffered from depression at some point in their life, ranging from 6.8% to 20.4%, and those who were currently depressed or had been within the past 1 year, from .31% to 8.9%. Individual studies differed in geographic region, ethnic or minority population, gender, age of child or adolescent, age range, time frame, and depression type, thus making consolidation of different sources of data difficult. Moreover, Stark and his colleagues (1997) maintained that the results of many studies neglect to include prevalence rates of Dysthymic Disorder in determining the percentage of children and adolescents suffering from depression, resulting in an underestimate of overall depression among this group. When both forms of depression are considered, the prevalence rate is estimated to rise from 5% to 7% for children in the fourth through seventh grades (Stark, 1990; Stark et al., 1997).

In a study that included a sample of 496 females, age 12 to 20 years old, and assessed depression over a period of seven years using annual diagnostic interviews, results yielded a prevalence rate of 17% for major depressive disorder and 20% for minor depression (Rhode, Beevers, Stice, & O'Neil, 2009). The mean duration for a major depressive episode was 5.3 months, with the prevalence rate for major depression peaking at age 16. The researchers concluded that, "Adolescence is a high-risk period for depression in young women, although its prevalence and phenomenology vary as a function of age and race/ethnicity" (p. 1339).

Prevalence varies with age, and the course of the disorder appears to be impacted by developmental factors (Kazdin & Marciano, 1998). A lack of consensus in the current research in these areas has limited our understanding of the variables involved. However, much research supports a prevalence rate that is relatively low in preschool children (1% to 4%), increases during the early childhood years, and then increases further during adolescence. Kashani, Ray, and Carlson (1984), for instance, found a lower prevalence rate of major depression or dysthymic disorder among the preschoolers in their study (4%) as compared to that reported for older children and adolescents. This was supported by an earlier study (Kashani & Ray, 1983) that failed to identify any cases of major depressive disorder among a sample of 241 preschool children when DSM criteria were used to interpret results of parent surveys. In both studies, the researchers concluded that the prevalence rates for preschool children are lower than that for other age groups – due either to a relative absence of depressive symptoms or limitations in DSM criteria for this age group. It is plausible as well that depression in younger children may manifest itself quite differently or that depression as we know it may require more developed cognitive skills, skills not found with this age group.

Recent studies support an overall increase of depression in adolescence, with rises in prevalence rates in both community (Steinhausen & Metzke, 2000) and clinical (Williamson, Birmaher, Frank, Anderson, Matty, & Kupfer, 1998) samples. Some research (e.g., Stark, 1990; Stark et al., 1997) has interpreted data from existing studies as indicating a prevalence rate that increases gradually throughout the preschool, elementary, junior high, and high school years until it levels off to the adult rate at some point in adolescence, roughly 10%. However, other research has demonstrated that such an interpretation may be an oversimplification or, even worse, conceptually misleading. Carlson and Kashani (1988) conducted an analysis of three

studies, which considered collectively, provided prevalence rates of depression over the lifespan from preschool years into adulthood. Their results led them to make a cautionary distinction between increases in rates of depression as a syndrome or disorder and rates of individual symptoms of depression, examined independently. From their analysis, the researchers concluded, “age modifies symptom frequency but does not alter basic phenomenology” (p. 1222). Results of their analysis indicated comparable levels of depressed or dysphoric mood, diminished concentration, insomnia, and suicidal ideation across the developmental spectrum. By contrast, feelings of hopelessness, anhedonia, psychomotor agitation, delusional distortion, and diurnal variation (i.e., feeling worse in the morning) showed an increase from preschool to adulthood. Interestingly enough, low self-esteem and somatic complaints decreased. Perhaps the most important implication of prevalence studies of depression is that using adult-derived criteria for identification and diagnosis of children and adolescents, such as those used by the DSM, may fail to account for developmental variants in the course of depressive symptoms (Carlson & Kashani, 1988; Kashani & Ray, 1983; Kashani et al., 1984).

Failure to consider degree of severity can also distort the epidemiological picture. In one study of adolescent depression (Sullivan & Engin, 1986), for example, the researchers obtained a prevalence rate of 6% for students who had scored in the “severe range” of depression; however, a startlingly large percentage of 26% was obtained for adolescents whose scores fell in the “moderate range.” Moreover, when depression is examined at the level of a single depressive episode, percentages become larger yet: Based on cumulative research over two decades, Lewinsohn, Rhode, and Seeley (1998) concluded that 28% of adolescents will experience at least one episode of depression by the time they are 19 years old.

There is also a lack of consensus on whether there are gender differences in prevalence rates for children and adolescents. Most studies have indicated an increased prevalence of depression for females beginning in early adolescence (Nolen-Hoeksema & Girgus, 1994; Rushton, Forcier, & Schectman, 2002; Wade, Cairney, & Pavalin, 2002; Wichstrom, 1999), whereas other studies found no significant difference or a very small effect size (Compas, Oppendisano, Connor et al., 1997; Kovacs, 2001, 2003). In a study by Compas et al., subjects included 2022 adolescents who had been referred for mental health services and 1168 from the general population. The researchers found gender differences in the clinically referred sample only; moreover, results from self-reports produced greater differences than those derived from parent reports. Kovacs (2001, 2003) did not find gender differences with respect to specific features of depressive disorders, features that included age at onset, course, severity, rate of recovery from initial and recurrent episodes, and rates of comorbid disorders. In a study that compared data across six different cognitive measures of depression (Ingram, Nelson, Steidtmann, & Bistricky, 2007), results led the researchers to conclude, “Few statistically significant gender differences were found for any of the measures...” However, Ingram et al. added, “gender differences may in fact exist, but because of the paucity of the necessary data, were not found” (p. 399).

By contrast, Rushton et al. (2002) analyzed the results from the National Longitudinal Study of Adolescent Health, a study that included a sample of 13,568 adolescents, concluding that there was a significant gender difference, both in terms of overall prevalence and in severity and stability of symptoms. This result was supported by Wade et al. (2002) based on an analysis of data using large samples from Canada, Great Britain, and the United States. In addition, the researchers found support for a gender gap that consistently emerges at age 14, a difference in

prevalence found in spite of differences in nationality or the measures used to assess depression for this age group.

Further support for a gender gap forming during adolescence was given by a study of 12,000 Norwegian adolescents (Wichstrom, 1999), in which the researcher, while failing to detect a gender difference at age 12, found it to emerge by age 14, with adolescent females scoring 0.5 *SD* above males on a measure assessing depressed mood. In addition, the researcher provided support for a developmental model of gender differences, the Extended Gender Intensification Model, which posits that school change, body dissatisfaction, and physiological changes associated with puberty interact to produce higher levels of depression for girls. Plausible hypotheses and causal links explaining these findings include powerful cultural dictates of feminine beauty, a more positive experience of early pubertal onset for boys than for girls, and the greater impact of body image on the self-esteem of adolescent females.

Given that most adults with depression reported the initial onset as occurring between the ages of 15 and 19 (Burke, Burke, Reiger, & Rae, 1990), adolescence presents a critical period in the development of the disorder. The onset, course, and risk of recurrence in clinically referred adolescents have been found to closely resemble that found in adult populations (Kovacs, 1996). Lewinsohn, Rohde, and Seeley (1998) obtained mean and median ages of onset for an initial episode of Major Depressive Disorder at 14.9 years and 15.5 years, respectively. Episodes of depression last several months – an average of 10 months for youth in the general population, with a somewhat higher average (11 months) for those who have been clinically referred (Kovacs & Sherrill, 2001). Data show 15% of children and adolescents experience a first episode of depression that lasts more than 18 months.

Onset and Course

The onset and initial course for youth who have a first episode of Dysthymic Disorder may differ dramatically from those experiencing a first depressive episode (Kovacs, Akiskal, Gatsonis, & Perrone, 1994). Kovacs et al. (1994) found that there was an earlier onset of the initial episode – as early as 5 years of age – with a much longer course, episodes lasting an average of four years. Moreover, 75% of the children who experienced an early dysthymic episode went on to experience subsequent episodes of Major Depression or, in some cases, Bipolar Disorder. Considered collectively, individuals diagnosed with Major Depression or Dysthymic Disorder early in life are in some state of depression for 30% of their late childhood and early adolescence (Kovacs & Sherill, 2001).

As with comparisons with adult depression, research indicates a similarity between the onset of depression occurring in childhood and that during adolescence (Birmaher et al., 2004; Lewinsohn, Rohde, & Seeley, 1998). Birmaher and his colleagues (2004) followed 26 children and 22 adolescents over a 5-year period, finding that both the pre-pubertal and post-pubertal groups showed comparable symptoms, duration of episodes, rates of recovery, episode severity, recurrence rates, presence of comorbid disorders, and parent history of psychopathology. Furthermore, the most severe courses of depression were associated with female gender, high levels of reported guilt, prior depressive episodes, and a family history of psychiatric disorders. Lewinsohn et al. (1998) reported similar findings in comparing the two groups; however, they identified longer episodes as being associated with earlier onset (at or before age 15). In their research, onset of depression during childhood was associated with female gender, lower level of parental education, comorbidity with other disorders, and a history of suicidal behavior.

Complementing findings on prevalence rates, the researchers found rates of onset in childhood to be approximately 1%, rising to 2% at age 13, and then to 3% to 7% by age 15.

Warner, Weissman, Fendrich, Wickramaratne, & Moreau (1992) studied 174 children and adolescents having parents with depression, concluding that parental depression has a marked influence on the course of depression in their offspring. They identified different predictors for incidence, recurrence, and times to recovery. In addition to parental depression, incidence was predicted by subclinical symptoms of depression and a diagnosis of conduct disorder.

Recurrence of subsequent episodes was predicted by problems in social functioning and the presence of Dysthymic Disorder. Finally, longer periods of recovery were associated with early onset of depression (13 years or younger), experience of parental divorce, and exposure to a parental episode of depression. Over the two-year period of the study, the incidence rate was 8.5% and the recurrence rate was 16.1%; 87% of the depressed youth had recovered by the end of two-years.

Etiology of Adolescent Depression

The cumulative body of research has coalesced into consensual agreement that there is no single cause of depression (Akiskal & McKinney, 1975; Kazdin & Marciano, 1998; Stark et al., 1997). The phenomenological picture of depression is a complex one, with multiple risk factors and etiological pathways, many of which are interrelated and exert reciprocal influences on one another (Kendler, Gardner, & Prescott, 2002). To complicate the issue further, there may be multiple pathways leading to the same disorder in different individuals. Research from longitudinal studies has identified a number of risk factors for the onset of depression in childhood and adolescence (Kazdin & Marciano, 1998), including family history of depression, violent or non-cohesive family environment, family composition (Reinherz, Paradis, Gioconia,

Stachwick, & Fitzmaurice, 2003), parent depression (Warner, Weissman, Fendrich, Wickramaratne, & Moreau, 1992), female gender (Warner et al., 1992; Wichstrom, 1999), stressful or traumatic life events (Rice, Harold, & Thapar, 2003), race/ ethnicity (Rohde, Beevers, Stice, & O'Neil, 2009), and social withdrawal (Goodwin, Fergusson, & Horwood, 2004). Lewinsohn and his colleagues (1994) identified additional psychosocial risk factors including history of current and past psychological problems, substance use, physical illness, conduct problems, cognitive style (i.e., pessimistic explanatory style attributing personal failure to internal, global, and stable factors), low self-esteem, excessive self-consciousness, and poor coping skills. Conflict with parents, failure to complete homework, and dissatisfaction with grades were also found to predict later episodes of depression (Lewinsohn et al., 1994).

In the face of the many difficulties inherent in determining causal factors contributing to depression, a number of conceptual approaches have emerged, each with its own proposed models and associated methods of research (Kazdin & Marciano, 1998; Stark et al., 1997). More fruitful views of the origins of depression in any given child or adolescent seem to necessarily involve an acknowledgment of the interactions and interrelationships of multiple determinants contributing to etiological pathways (Stark et al., 1997). Genetic factors, neurobiological processes, cognitive patterns, and environmental contingencies have all been implicated as contributing in profound ways to the development of depressive disorders.

Genetic Contributions

Twin studies have largely served as the basis of studies examining the genetic contributions to depression. Sullivan, Neale, and Kendler (2000) conducted a meta-analysis of adult twin studies to determine that approximately 40% of the variance in susceptibility to Major Depression was due to genetic factors, with 60% due to non-shared environmental factors.

Glowinski, Madden, Bucholz, Lynskey, and Heath (2003) extended this research to a sample of 3416 female adolescent twins, obtaining results strikingly similar to that of the Sullivan et al. study (genetic variance in risk and in non-shared environmental effects, 40.4% and 59.6%, respectively). Hence, within this conceptual framework, adolescent and adult Major Depressive Disorder appear to be determined by comparable etiological factors.

There has been some recent evidence that genetic factors exert greater influence on depressive symptoms as children grow into adolescence (Scourfield, et al., 2003), pointing to a developmental expression of genetic predisposition. In their study of 670 sets of twins, Scourfield and her fellow researchers found that shared environmental factors during childhood and early adolescence influenced levels of depressive symptoms to a greater extent than they did when the child progressed into adolescence, at which point genetic influences intensified. Rice, Harold, and Thapar (2003) provided data from questionnaires administered to 1468 families of twins to support their thesis that the increased influence of genetic factors in adolescence is attributed to gene-environmental interactions mediated by negative life events. The researchers also concluded that adolescence is “associated with a greater number of behavior-dependent life events” (p. 977).

Psycho-Physiological/Neurobiological Models

Along with genetic variables, psycho-physiological/ neurobiological models represent a second major area of research into the biological roots of depression. Following from these models, research initiatives have been directed toward examining the respective roles of impaired functioning in specific regions of the brain, abnormalities in neurotransmitter and neuroendocrine systems, and disturbances in sleep cycles (Carlson, 2001; Stark et al., 1997).

The prefrontal cortex has been a primary focus of research on the physiological origin of depression, with mounting evidence that this portion of the brain plays an important role in the regulation of emotion (Stuss, Gow, & Hetherington, 1992). Recent neuroimaging studies with both adult and adolescent populations have provided further support for this conclusion (Halari et al., 2009; Rogers et al., 2004). Abnormal functioning of the basal ganglia, cerebellum, hippocampus, thalamus, and temporal lobe has also been implicated in contributing to Major Depressive Disorder (Soares & Mann, 1997).

Examination of neurotransmitter systems within the nervous system has been an additional important focus of research, a focus that has generated the monoamine hypothesis, which posits that depression is caused by reduced efficiency in the synaptic activity of monoaminergic neurons (Brooks-Gunn, Auth, Petersen, & Compas, 2001; Carlson, 2001). Of the four monoamines, norepinephrine and serotonin have received the most research attention (Carlson, 2001). Norepinephrine and serotonin are found throughout the limbic system, a set of forebrain structures that are responsible for emotion and motivation and which includes the hippocampus and basal ganglia (Carlson, 2001). Support for the monoamine hypothesis has been given, for instance, by findings that 5-HIAA, a metabolite produced by the breakdown of serotonin, is found in lower levels in individuals with depression (Traskmann, Asberg, Bertilsson, & Sjostrand, 1981). Older models suggesting that depression is caused by deficits in neurotransmitter production have largely been supplanted by more complex ones involving the regulation of neurotransmitter systems, regulation that enlists many systems at many different levels (Brook-Gunn et al., 2001; Shelton, Hollon, Purdon, & Loosen, 1991). Viewed from this perspective, depressive symptoms may be caused by the resulting inefficiencies in pre- and

postsynaptic processes, processes that include synthesis, release, reuptake, receptor responsiveness, and number of receptor sites (Shelton et al., 1991; Siever & Davis, 1985).

Because of the intimate involvement of the monoamine neurotransmitters with the endocrine system, considerable research effort has been expended toward examining the interaction of the two in causing and maintaining depressive symptomatology. A number of endocrine systems have been implicated in depression, including the hypothalamic-pituitary-thyroid (HPT) axis, the hypothalamic-pituitary-adrenal (HPA) axis, the hypothalamic-pituitary-gonadal (HPG) axis, and the hypothalamic-pituitary-somatotropic axis, the former two having received the most attention (Brooks-Gunn, 2001; Shelton et al., 1991). In each system, hormones released by the hypothalamus travel to the pituitary gland, where they precipitate the release of a stimulating hormone. The sequence continues as the hormone triggers the release of yet another hormone in a target gland, such as the thyroid, adrenal, or gonad. This final hormone then enters the circulatory system, where it exerts further influence in both the hypothalamus and the pituitary gland. Depression then is posited as resulting directly from faulty regulation in the hypothalamic-pituitary axes or indirectly from neurotransmitter deficits or inefficiencies, which, in turn, affect the functioning of these axes (Brooks-Dunn et al., 2001).

In addition to examining the roles of neurotransmitter and endocrine systems, research has also extended to the area of circadian rhythms, particularly those associated with sleep (Brooks-Dunn et al., 2001; Carlson, 2001; Kazdin et al., 1997). This is not surprising, considering that an important symptom of depression is difficulty sleeping. The sleep of individuals with depression is characterized by shallow, fragmented sleep, manifested by earlier onset and prolonged intervals of REM sleep along with a reduction in the third and fourth stages, characterized by slow-wave delta sleep (Kazdin et al., 1997; Kupfer, 1976; Vogel, Vogel, McAbee, & Thurmond,

1980). Support for the role of alterations in sleep patterns in depression has been dramatically provided by studies showing that total or selective sleep deprivation (reduction in REM sleep) acts to reduce depressive symptoms during the following day (Vogel, Thurmond, Gibbons, Sloan, Boyd, & Walker, 1975; Vogel et al., 1980). As counter-intuitive as this might seem, studies extending from the 1960s to more recent research, have established a connection between depression and REM sleep abnormalities. Individuals with depression display a shorter time interval between the onset of sleep and the first REM sleep cycle; moreover, these individuals tend to stay in this cycle longer and display a greater density of REM activity (frequency of rapid-eye movement) than non-depressed subjects (Palagini, Baglioni, Ciapparelli, Gemignani, & Riemann, 2013; Reiman et al., 1994).

Differences in the neurobiological underpinnings of depression between adolescents and adults invariably involve a consideration of the impact of development, particularly those associated with physical changes during puberty (Brooks-Gunn et al., 2001; Sokolov & Kutcher, 2001). Marked changes in the neuroendocrine system during puberty, particularly those involving the hypothalamic-pituitary-adrenal and the hypothalamic-pituitary-gonadal axes, result in complementary behavioral, affective and physiological changes. With respect to the HPA axis, studies have shown that adults with depression are more likely to secrete higher levels of cortisol – a hormone associated with this axis – than are non-depressed adults; whereas, cortisol levels in depressed and non-depressed prepubescent adolescents are comparable (Birmaher et al., 1996). It would seem reasonable that, given the central role of the hypothalamic-pituitary-gonadal (HPG) axis in the unfolding hormonal drama of adolescence, it would hold promise as an important focus of research into the physiological origins of depression. Just prior to the onset of puberty, as the HPG axis is once again activated, levels of luteinizing hormone and

follicle-stimulating hormone (gonadotrophins) increase, stimulating the release of higher levels of androgens and estrogens. The result is the development of secondary sexual characteristics and the general maturation of the gonads for both males and females. Some research has suggested that there is a significant correlation between levels of testosterone and estrogen and the onset of a sad or dysphoric mood, symptomatically associated with depression (Brooks-Gunn & Warren, 1989). In children who had not yet undergone puberty, increased levels of growth hormone (GH), accompanying increased estrogen production, was significantly correlated with depression (Burke & Puig-Antich, 1990). With adolescents, however, this finding was not replicated, strongly suggesting the marked influence of physiological development on depression during puberty. In spite of the growing research on the endocrinal concomitants of adolescent depression, there has been a failure to identify specific physiological markers for depression in adolescence, markers that would allow neurobiological models to take a step closer to diagnosis (Brooks-Dunn et al., 2001).

Goodyer (2008) identified two theoretical frameworks of neuropsychological substrate of depressive syndromes in children and adolescents, organizing the body of existing research. The first, designated as *atypical early epigenesis*, is characterized by a neurological vulnerability generated in the infant and early childhood years. More specifically, neural networks involving primarily the amygdala and ventral prefrontal cortex do not develop normally, ultimately having an adverse affect on the ability to regulate mood. This fundamental vulnerability becomes manifest when the individual is confronted with life stressors and environmental demands. By contrast, the second theoretical framework, *acquired neuroendangerment*, posits a compromised neural formation which does not necessarily arise during the few years of life, but as the term suggests, can be generated at any point in the lifespan. Regions of the brain that are implicated

include the hippocampus, nucleus accumbens, and ventral tegmentum. Reductions in neuronal activity and plasticity result in deficits in motivation, cognition, and ultimately, behavior.

Goodyer (2008) asserted that atypical early epigenesis and acquired neuroendangerment may describe coexisting processes rather than competing explanatory models. This implies that the extent to which one process predominates over the other shapes the onset, course, and intensity of depression.

Cognition and Adolescent Depression

Along with genetic and neurobiological conceptions of depression, there has been extensive research interest in models that examine how cognitive processes create and maintain depressive symptoms. Popular models such as Beck's cognitive model (Beck, 1967; Beck, 1979) and recent revisions and extensions of Seligman's original learned helplessness model (Abramson, Seligman, & Teasdale, 1979; Seligman, 1975) have inspired research into both the nature of depression and the effectiveness of therapeutic applications. In both models depressed individuals maintain depression through the sustained and repeated activation of negative thoughts, which in turn impact their experience of life events.

Depressive schemas figure prominently in Beck's model (Beck, 1967; Beck, 1979). A schema is a cognitive framework formed in response to a given situation: It is "the basis for molding data into cognitions...defined as any ideation with verbal or pictorial content" (Beck, 1979, pp. 12-13). Depressive schemas, then, are ones that are consistently evoked by the person to interpret and structure experience in negative ways. Originally created in response to a negative event, these schemas are then used thereafter, creating the symptoms of depression. A second important concept in Beck's model is that of the cognitive triad, a construct that further delineates the cognitive nature of depression. The cognitive triad, the hallmark of depressive

thinking, consists of a pervasive negative view of the self, ongoing experience, and the future (Beck, 1979). The third conception identifies the use by depressed individuals of specific cognitive errors or distortion – arbitrary inference, selective abstraction, overgeneralization, magnification and minimization, personalization, and absolute/ dichotomous thinking (Beck, 1967; Beck, 1979). Again, these cognitive structures act to maintain depressive symptoms.

More recent studies have extended Beck's model to adolescent depression. In one such study (Abela & Sullivan, 2003), the diathesis-stress component of Beck's model was tested in a study involving 184 seventh grade students. Diathesis-stress models are grounded in the hypothesis that cognition and stressful life events interact to create and sustain depression. In this study, 184 adolescent students were asked to complete measures of dysfunctional (negative) attitudes, depressive symptoms, and self-esteem. Six weeks later, they again completed the depression scale, as well as one assessing stressful life events. Results provided support for Beck's model insofar as there was a significant correlation between higher levels of dysfunctional attitudes and higher levels of depression. However, the researchers also found that young adolescents with high levels of dysfunctional attitudes showed greater depressive responses to stressful life events *only* when they also had high levels of self-esteem. This counter-intuitive result did not support Beck's model and suggests that a consideration of self-esteem may need to be integrated into these models. Moreover, Abela and Sullivan (2003) suggested that dysfunctional attitudes may not have as profound an impact on depressive symptoms in early adolescence as they do in later adolescence and adulthood.

In a related study with an older adolescent population (Deal & Williams, 1988), the relationship between life stress, cognitive distortions, and depression was examined, the 103 ninth- to twelfth-grade high school students in the study having been administered measures

corresponding to each of the variables. Results supported the researchers' hypothesis – and Beck's model – that higher levels of cognitive distortions correlate more strongly with higher levels of depression than they do with greater life stress. Hence, according to the study, a more extensive use of cognitive distortions predicts depression better than a high level of life stress. Predictably, Deal and Williams found that greater use of cognitive distortion also correlated with greater perceived stressfulness of events.

The learned helplessness model is based on the notion that a specific attributional style (a personally-maintained explanatory framework) mediates between difficult or stressful life events and depression (Abramson, Metalsky, & Alloy, 1989; Seligman, 1975). According to this model, individuals having a depressive attributional style interpret negative life events as due to factors that are internal, stable, and global – that is, they are due to personal shortcomings, are consistent over time, and persist across situations. According to this model, depression is sustained by the constant recourse to this explanatory framework, or attributional style, which serves as the basis for processing all information about the world (Abramson et al., 1989).

As with Beck's theory, recent studies have extended this general model to adolescence. Spence, Sheffield, and Donovan (2002) examined the diathesis-stress model as it applied to younger adolescents having a depressive attributional style. Within the learned helplessness model, the diathesis-stress component involves the interface of negative life events and a depressive attributional style to create the symptoms of depression. Spence et al., however, failed to find support for the diathesis-stress model in relation to attributional style: They found that a pessimistic or depressive attributional style predicted depressive symptoms whether or not appreciable negative life events had taken place. Having a negative problem solving orientation, however, predicted depression only in the presence of a high degree of negative life events.

By contrast, another recent study (Hankin, Abramson, & Siler, 2001) found support for the diathesis-stress component of learned helplessness theory when applied to youth in middle and late adolescence. In their study, the researchers sought to examine the specific outcomes predicted by the learned helplessness/ hopelessness model, namely, that those adolescents who encounter many stressful life events and have a pessimistic attributional style experience an increase in depression, particularly those symptoms related to feelings of hopelessness and helplessness. Measuring changes in depressive symptoms from time 1 to time 2 provided the experimental basis for supporting a cognitive etiology of depression, with the attributional style - stress interaction as cause. At the same time, the stress-diathesis component did not predict depression for females; however, when only the hopelessness-related symptoms of depression were considered, high stress and a pessimistic attributional style did predict these symptoms. It would appear then that further research is necessary to determine whether high stress and a helpless attributional style cause depression in adolescence or merely function to sustain it once onset occurs. Given the increase of reported stressful life events in adolescence (Ge, Lorenz, Conger, Elders, & Simons, 1994), clarification of these issues would be a useful contribution to research in this area.

Research on comparative data on cognitive measures of depression in adults has been replicated for child and adolescent populations (Ingram, Nelson, Steidmann, & Bistricky, 2007). Measures selected in this study were based on cognitive models and included instruments assessing attributional style, cognitive error patterns, Beck's cognitive triad of depression, and hopelessness. Ingram et al. concluded that these measures hold promise for examining the effects of treatment.

The Interpersonal Context and Life Events

Adolescents with depression have also been found to exhibit behavioral problems, particularly in their social functioning. With respect to their peer group, they view others as less supportive (Rudolph, Hammen, & Burge, 1997; Shirk, Van Horn, & Leber, 1997) and experience a relative lack of social competence (Rudolph et al., 1997). As a group, they are less liked by their peers in comparison to non-depressed youth (Blechman, McEnroe, Carella, & Audette, 1986). Deficits in social skills have been proposed as a behavioral cause of depression, acting to deprive depressed adolescents of rewarding (reinforcing) social experiences (Lewinsohn, 1975). In addition, it has been proposed that a vicious circle is created when peers respond in a rejecting manner to a depressed adolescent, due to his or her lack of social skills; in turn, this rejection then acts to maintain depression through increased social isolation, and the cycle continues (Coyne, 1976). This model has been challenged somewhat, however, by Stark and his colleagues (Stark et al., 1997; Stark et al., 1998), who have demonstrated that many youth with depression possess the knowledge of social skills but fail to demonstrate it (“performance deficit”). In their research, Stark et al. found that, in addition to not behaving in an appropriate manner, depressed youth interacted in ways marked by anger, jealousy, and withdrawal. These children also reported more negative states of emotional arousal, which, combined with equally negative views of their interactions, may have acted in tandem to inhibit the use of appropriate social skills (Stark et al., 1997; Stark et al., 1998). In support of this, another study (Smari, Petursdottir, & Porsteinsdottir, 2001) found a significant correlation between severity of depressive symptoms and perceived lack of social competence in its sample of 184 adolescents, age 14 to 15. In a longitudinal study, Kiesner’s (2002) analysis of the data revealed that low peer status at time 1 predicted time-2 depression. Taken together, these studies

suggest the possibility that perceived lack of social competence and an actual lower status among peers interact with one another in ways that are both additive and reciprocally reinforcing, thus helping to maintain depression.

In addition to psychosocial variables related to peers, those associated with family functioning undoubtedly impact the onset and maintenance of depressive symptoms in adolescents. As intuitive as this may seem, however, there is limited research identifying which specific variables are involved (Stark et al., 1997). Kaslow, Rehm, and Siegel (1984), for example, provided support for higher levels of “disturbance” in the families of depressed youth yet did not specify which facets of family disturbance were implicated (Stark et al., 1997). “Low social support from family” has been found to function as both a risk factor and predictor of later episodes of depression in adolescents (Lewinsohn et al., 1994; Lewinsohn et al., 1998). Low family cohesion, self-perceived poor role in family, family violence before the age of 15, and abuse before the age of 15 have been found to predict depression during late adolescence (Reinherz, Paradis, Giaconia, Stashwick, & Fitzmaurice, 2003).

Hammen, Brennan, and Shih (2004) found that when there was a low level of family conflict, rates of depression were comparable for adolescents with a depressed mother and for those whose mother was not depressed. Results of this study showed that as levels of family stress and conflict rose, adolescents having a depressed mother were more vulnerable to developing depression themselves. Low marital satisfaction, poor relationship to mother, low perceived maternal warmth, and high maternal hostility were associated with higher percentages of depression for both groups in the sample; however, in the case of adolescents with depressed mothers, percentages were significantly higher. Youth in the sample who experienced sustained,

chronic levels of personal and episodic stress showed higher levels of depression regardless of whether or not they had a depressed mother.

In a study of adolescents in Taiwan (Liu, 2003), high levels of parental indifference and negative parental messages about the child, world, and future were associated with higher depression scores in the dependent variable. Eamon (1992) studied family-related and social factors mediating between poverty and depression, finding that neighborhood conflicts, isolation from school and community activities, maternal depression, and corporal punishment by the mother each contributed to higher levels of depression in adolescents living in poverty. Other factors mediating between poverty and depression were poor health, low satisfaction with school, parental conflict, and low paternal emotional support.

Comprehensive models of adolescent depression have taken shape in ways that consider both internal and external factors. In addition to external forces embodied in family and social interactions, researchers have examined the impact of stressful life events on the onset and course of depression (Rice, Harold, & Tharpar, 2003; Waaktaar, Borge, Fundingsrud, Christie, & Torgersen, 2004). Research has consistently found a correlation between depression and stressful life events, yet the nature of this relationship remains unclear (Rice et al., 2003; Sandberg, Rutter, Pickles, McGuiness, & Angold, 2001). The clinical picture becomes even more complex when genetic, hormonal, and cognitive mediators are introduced into the discussion. At the same time, current research has persuasively shown that the simple, linear cause-and-effect relationship between negative events and depression in youth may not hold (Sandburg et al., 2001; Waaktaar et al., 2004). Furthermore, the unidirectional view of negative life events causing depression has been seriously challenged. Waaktaar et al. (2004) measured both depressive symptoms and negative life events at time 1 and time 2 one year later, and found

that level of depression was significantly related to the number of stressful life events reported by subjects. However, when controlling for initial levels of depression, this correlation was not found. Moreover, initial levels of depression were found to actually predict negative events, suggesting the possibility that adolescents with depression may contribute directly or indirectly to the negative life events they experience. Alternatively, depressed adolescents may interpret events more negatively than their non-depressed peers.

In a study researching the respective roles of genetic influence and negative life experiences, Rice, Harold, and Thapar (2003) made the distinction between negative life events that are independent and those that are dependent. That is, independent events are those that generally cannot be attributed to the behavior of the individual: death of a parent, father losing job, serious illness or injury in the immediate family, or a close friend moving away. Dependent events, by contrast, are those in which the individual can be inferred to play some causal role in creating the event; such dependent events include doing badly on schoolwork, losing a close friend following an argument, or being nagged or picked on more by a parent (Rice et al., 2003).

Research has examined the interaction between genetic influence and behavior-mediated negative life events. Rice et al. (2003) obtained data from the parents of 1468 pairs of twins ranging in age from 8 to 17 years, assessing levels of depression and negative life events, including separate measures for behavior-independent and behavior –dependent events. Results included the finding that adolescents exhibited higher levels of behavior-dependent negative life events than did younger age groups, with higher correlations between genetic contribution, depressive symptoms, and negative life events for adolescents. The study also found support for the hypothesis that the greater genetic influence on depression during adolescence (Scourfield et al., 2003; Thapar & McGuffin, 1994) is the result of higher gene-environment covariation, the

environmental component in this case represented by negative life events. Both behavior-dependent and behavior-independent events showed higher correlations with genetic influence in the adolescent group.

Cognitive mediators between negative life events and depression in adolescence have also been investigated (Seiffge-Krenke, 2002; Spence et al., 2002). Spence et al. (2002) examined the role of attributional style and problem solving orientation in affecting the relationship between negative life events and depression. The results obtained from their community-based sample, younger adolescents ages 12 to 14 years, indicated that having a negative problem solving orientation was associated with higher levels of depression, but only when there was a correspondingly higher level of negative life events. As noted earlier, the researchers found that having a pessimistic attributional style predicted time 2 increases in depressive symptoms regardless of the extent of reported negative life events. Thus, having a negative problem solving orientation appears to interact with negative life events to increase the vulnerability to higher levels of depression, a mediating role not exhibited by attributional style.

Comorbidity with Other Disorders

Depression in adolescence is often complicated by co-occurrence, or *comorbidity*, with other disorders. Approximately 47% – nearly half – of adolescents with Major Depressive Disorder also have another psychological disorder during their lifetime (Lewinsohn et al., 1998). Higher estimates have been made: One study (Simonoff, et al., 1997) found that approximately 77% of youth suffering from depression also had one other disorder; a surprisingly high 27%, according to the study, demonstrated symptoms of three or more concurrent disorders. Over 20% have anxiety disorders; 13% have disorders related to alcohol use; and 18% have substance use disorders.

Of particular relevance to the school system is the finding that youth with learning disabilities exhibit higher levels of depressive symptoms on both self- and teacher-rating scales (Hall & Haws, 1989). Explanations of this co-occurrence, however, have not reached consensus. Researchers have noted the relationship between learning disabilities and social skills deficits (San Miguel, Forness, & Kavale, 1996). Subsequent reviews of the literature have posited that social skills deficits in students with learning disabilities are due to comorbidity with other disorders, such as attention-deficit hyperactivity disorder (ADHD) or depressive disorders (San Miguel, Forness, & Kavale, 1998). This “Psychiatric Comorbidity Hypothesis” has been disputed by another survey of existing literature that suggests that, while youth having both a learning disability and ADHD are at risk for social skills deficits, there is no research basis for the assertion that students with both a learning disability and depression are at increased risk for social skills deficits (Weiner, 1998). Furthermore, evidence suggests that some youth who have learning disabilities but not an affective disorder also have deficits in social skills (Weiner, 1998).

Depression and Achievement

The current body of research examining the relationship between depression and academic achievement is surprisingly sparse, especially given the burst of interest in childhood and adolescent depression over recent years. Conspicuously absent are any studies examining the achievement outcomes for students participating in school-based interventions for depression. This is particularly surprising in light of the growing need for accountability in showing that these interventions lead to positive academic outcomes, an accountability linked to the schools’ ethical responsibility to students and legal obligations to meet state and federal requirements for funding.

Academic achievement has been shown to be significantly lower among children and adolescents with depression when compared to others who do not exhibit behavioral or psychological problems (Cole, 1990; Nolen-Hoeksema, Girgus, & Seligman, 1986; Puig-Antich et al., 1985; Stark et al., 1997). In an earlier study (Testiny, Lefkowitz, and Gordon, 1980), measures of achievement were found to vary inversely with both external locus of control and depression among a group of 944 male and female fourth- and fifth-grade elementary school children. In this study, level of depression was assessed through a group-administered inventory asking students to rate their peers on depression-relevant items; achievement was based on standardized achievement tests, teacher ratings, and quartile rankings.

Somewhat different results were obtained from a more recent study (Kirkcaldy & Siefen, 1998) that focused on the relationship between depression, trait anxiety, self-image, attitude toward school and others, obedience, and achievement motivation. Subjects were children and adolescents ages 11 to 17. One of the comparisons found little support for the association between high ratings of depression on the Kovacs *Children's Depression Inventory* (CDI, 1990) and low achievement motivation. The researchers' conclusion was that "achievement orientation ... appeared relatively unrelated to depression" (p. 145). It should be noted, however, that achievement and "achievement orientation" are completely different constructs, the former reflecting actual academic performance and the latter representing attitude toward success in school. For instance, a student may suffer from depression, display low academic functioning, and yet value – and even aspire to – success in the academic arena.

Beyond the finding that depression and achievement are negatively correlated, however, the stream of research relating depression to achievement diverges widely. When they are examined together in a study, they are usually marginal to the study's purpose, included as parts

of larger constructs, variables that mediate a given social problem, or appear among multiple indicators focusing on a specific model or proposed mechanism contributing to depression.

In a study by Juvonen, Nishina, and Graham (2000), for example, the researchers examined peer harassment, overall psychological adjustment, and school functioning. The focus of the study was to test the model that the perception of being a victim is associated with poor psychological adjustment and school outcomes: The researchers were interested in the “*combined* effects of changes in subjective feelings of victimization, self-worth, and loneliness on school adjustment” (p. 356). The measure of depression in this case, the Children’s Depression Inventory (CDI: Kovacs, 1985), contributed to the more-inclusive construct of “psychological adjustment.” Similarly, achievement was only part of a larger measure of “school adjustment,” which included grade point average (GPA) and absences from school.

Similarly, a study by Schwarz and Gorman (2003) included depression and achievement outcomes in its design; however the purpose of the study was to examine the impact of exposure to community violence on academic achievement, with depressive symptoms (and disruptive school behavior) mediating between the two. The study concluded that exposure to community violence was related to lower academic performance.

Measures of achievement and depression were included in a study examining the effect of perfectionism on achievement, achievement motivation, depression, and self-esteem using a group of 123 high school students in grades 10 to 12 (Accordino, Accordino, & Slaney, 2000). The model supported by the study was that the degree of tension or disparity between students’ personal expectations of themselves (perfectionism) and their actual academic performance leads to an increase in depression and a decrease in self-esteem. This suggests that perceptions of personal failure contribute to an increase in depressive symptoms. Thus, in the model proposed

in this study, poor achievement was not a result of preexisting depression, but interacted with expectations to increase depression. Using this direction of causality, changes in levels of depression appear as an effect of cognitive perception. Reynolds and Baird (2010) conducted a binomial regression analysis using two longitudinal studies of children and adolescents to determine whether there was a correlation between the magnitude of the difference between educational expectations and actual life outcomes and the presence of depression in adulthood. The researchers found that indeed unrealized expectations were associated with later depression; however, the extent of the gap between expectations and lower outcomes was not predictive.

Other studies have addressed achievement-related variables and depression in relation to other disorders or disabilities. Borden, Brown, Jenkins, and Clingerman (1987) assessed depressive symptoms and achievement attributions in 51 children (aged 68 to 157 months) previously diagnosed with Attention Deficit Disorder (ADD). The achievement-related construct in this case was derived from a scale assessing the extent to which the student attributes both positive and negative academic outcomes to internal or external factors. In comparison to controls, children with ADD reported higher levels of depression and were more inclined to explain both school success and failure in terms of outside factors (external attributions). Correlations by student age comparing the ADD group and controls also suggested that, for children with ADD, external attributions for negative achievement outcomes increased with age, whereas, for the group without ADD, internal attributions for both positive and negative outcomes increased. Again, the achievement-related construct was based on a self-report inventory, in this case, assessing explanatory style, rather than actual academic performance.

Another study (Dalley, Bolocofski, Alcorn, & Baker, 1992) examined levels of depressive symptoms among high school students diagnosed with learning disabilities. It found

that, compared to the control group, the group of high school students with learning disabilities displayed higher levels of self-reported depression, more negative attitudes, more depressive attributional styles, and were perceived by their teachers as less socially competent. Teacher ratings assessing social competence were not accompanied by ratings of academic achievement (for learning-disabled students, in subject areas not affected by a student's disability). Rather, both control and experimental groups were divided into "successful"/ high GPA and "unsuccessful"/ low GPA.

Several studies have examined the impact of anxiety on academic achievement. Given the high level of comorbidity of anxiety disorders with depression (Brady & Kendall, 1992), these studies hold some relevance to the current discussion. Research has shown that anxiety is associated with dropping out of school (Ameringen, Mancini, & Farvolden, 2003) and poor academic performance (Durbrow, Schaefer, & Jimerson, 2000). Research suggests that achievement is lower for children suffering from depression compared to peers without a psychological disorder but comparable to that of children with other disorders, including anxiety (Puig-Antich et al., 1985). It is a plausible hypothesis that anxiety and depression may share some internalizing factor, a factor that contributes to reduced academic achievement.

Group Interventions for Treating Depression

The body of research on the treatment of child and adolescent depression is limited and has yet to provide definitive support for the efficacy of any given intervention (Kaslow & Thompson, 1998; Magg, Swearer, & Toland, 2009; Oswald & Mazefsky, 2006; Rossello & Bernal, 1996; Rossello & Bernal, 1999; Weisz, McCarty, & Valeri, 2006). In spite of this, there is mounting support for the widespread use of comprehensive group intervention programs as a viable choice for treating children and adolescents with depression in the school setting (Clarke

et al., 1992; Merrill, 2001; Oswald & Mazefsky, 2006; Stark, 1990). Most of these interventions are outgrowths of the cognitive-behavioral approach to treating depression (Maag et al., 2009; Weisz et al., 2006). The *Adolescent Coping with Depression Course* (CWD-A; Clarke, Lewinsohn, & Hops, 1990) and the *Taking ACTION* program (Stark & Kendall, 1996) are two such interventions that have distinguished themselves as possibly efficacious, supported by extensive testing in the school setting (Kazdin & Marciano, 1998; Merrill, 2001).

However, major drawbacks to these programs appear when viewed in the light of the practical contingencies of the typical public school setting. The CWD-A, for instance, is a carefully sequenced, meticulously scripted program consisting of 16 two-hour sessions. Requiring students to miss two hours out of a regular school day once a week may be pushing the bounds of what is realistic. In addition to time considerations, the relative difficulty of implementing such a program may also make it prohibitive. The *Taking ACTION* program suffers from similar problems, with its 30 one-hour sessions. Merrill (2001) suggests that these programs can be modified – sessions shortened or eliminated – to better address the practical constraints of the schools; however, considering the careful structuring of these programs, any modification brings with it the risk of adversely impacting the treatment’s effectiveness. Moreover, supporting research is based on implementation of the entire program. Without knowledge of what specific components lead to success, the overall utility of the program may be undermined by cutting components that may be critical to desired therapeutic outcomes.

By contrast, the *Strong Teens Program: A Social-Emotional Learning Curriculum for Students in Grades 9-12* is a brief, comprehensive program consisting of a sequence of only 12 one-hour sessions that are conducted on a weekly basis. Like the CWD-A and the *Taking ACTION* program, *Strong Teens* shares the same cognitive-behavioral foundation, integrating

theory and techniques from cognitive therapy, behavior therapy, social skills training, problems solving, and effective communication training. Also, like these longer programs, it adopts a psycho-educational approach, one in which concepts are taught and practiced in the course of sessions that simulate the classroom setting. Worksheets, overheads, homework assignments, handouts, and optional scripts for lessons are included as part of the program.

The *Strong Teens* program was “designed for the purpose of promoting social and emotional resiliency and coping skills of high school students, or adolescents in grades 9-12” (Merrell et al., 2004, p. 3). The development of these competencies, in turn, acts to “reduce the severity of depression, anxiety, and related social and emotional problems.” The *Strong Teens* program was developed to meet the needs of a variety of students, including those with emotional disorders. Although it is not an intervention specifically for depression per se, many of the units correspond closely to guidelines offered by Merrell (2001) for such programs. Merrell identified a number of components shared by comprehensive courses for treating adolescent depression, each of which is also included in the *Strong Teens* program:

- Understanding how thinking and behavior influence mood
- Emotional education – awareness and appropriate expression of emotion
- Changing behavior through activity scheduling and goal setting
- Recognizing negative thoughts
- Disputing irrational thoughts
- Learned optimism
- Relaxation training
- Social problem-solving and conflict resolution

Lessons for *Strong Teens* are typically taught once a week, with average length of sessions 45-50 minutes. Group size is not specified, although Merrell has commented elsewhere (2001) that 4-8 students constitute the optimal number of participants for a small intervention group.

The sessions of the *Strong Teens* program are sequenced as follows:

1. Emotional Strength Training
2. Understanding Your Feelings Part 1
3. Understanding Your Feelings Part 2
4. Dealing with Anger
5. Understanding other People's Feelings
6. Clear Thinking Part 1
7. Clear Thinking Part 2
8. The Power of Positive Thinking
9. Solving People Problems
10. Letting Go of Stress
11. Behavior Change
12. Finishing Up

Appendix B contains a description of sessions.

To date, there are only two published articles examining the effectiveness of the *Strong Teens* program. The first of these (Merrell, Juskelis, Tran, & Buchanan, 2008) consisted of three pilot studies, evaluating the two versions of the social-emotional learning curriculum for three different age groups, the third of which included 14 high school students, grades 9-12, who were participants in the *Strong Teens* program. These subjects all attended a special education high school, with each of the 12 sessions of the program conducted weekly as part of a life-skills class. Lessons were co-taught by a special education teacher and a psychologist, who also served as a consultant. The researchers reported that “the students in Study 3 evidenced statistically significant and clinically relevant changes in their knowledge of social-emotional behavior/coping strategies and in their negative social-emotional symptoms following participation in the *Strong Teens* program” (p. 220-221). However, the students selected for the study, all of whom were receiving special education services under the IDEA classification “Emotional Impairment,” displayed a range of “severe emotional and behavioral problems” (p. 219) - not just depression. Accordingly, outcomes were evaluated on the basis of self-report

measures assessing a broader spectrum of affective and behavioral symptoms. Improvements in academic achievement were not measured.

Merrell et al. identified limitations in the study related to the small sample size and skewed distribution, which they described as “problematic.” The researchers also cited the study’s “limited scope and relatively simple design features” and the use of “brief experimenter-devised assessment instruments to gauge change,” as opposed to employing more comprehensive assessments to evaluate outcomes (p. 222). Although analysis of results using nonparametric means yielded clinically meaningful effect sizes when measuring pre- and post-test changes in the levels of students’ knowledge of content and the reduction of negative emotional symptoms, these effects were small, less than one-half a standard deviation and approximately one-third of a standard deviation, respectively.

The second existing study evaluating outcomes of the *Strong Teens* program was conducted by White and Rayle (2007). As with the Merrell et al. study, the researchers were interested in the program’s potential for improving the social-emotional functioning of students following participation in the group. However, in this case, subjects were all African American males, and the study’s primary focus was on describing adaptations of the program to address the unique social and cultural experience of this population; the authors described its purpose as presenting “a socially and emotionally competence-based, racial/ethnic-specific small group counseling model for use with African American males in high schools” (p. 180). Accordingly, while the overall theoretical underpinning of the program and of individual sessions were maintained, adaptations were made to meet the specific needs of this group, adaptations which included the use of historical and contemporary figures, music, and other aspects of popular culture to create a meaningful context for teaching concepts. Within lessons, scenarios for

discussion, role-playing exercises, and presentation of concepts were adopted to reflect culturally-relevant experiences involving family, peers, school, church, and community. The program was facilitated by the school counselor and lessons were conducted weekly with 10 to 12 students, who had been selected based on a needs assessment. While the authors presented a version of the *Strong Teens* program as holding potential for enhanced outcomes reflecting improved social-emotional functioning, outcomes for students participating in the study were not operationalized or measured for program effectiveness.

Issues in Selecting Indicators of School Achievement Outcomes

A survey of the research addressing the relationship between depression and achievement reveals a diverse number of approaches to the ways that school achievement is operationally defined. In the studies that have been reviewed, achievement has been successively defined in terms of GPA (Accordino et al., 2000; Juvonen et al., 2000; Dalley et al., 1992; Swartz & Gorman, 2003), dropping out of school (Ameringen, 2003), scores from locally standardized achievement tests (Matuszek & Oakland, 1979; Swartz & Gorman, 2003), scores from standardized general achievement tests (Matuszek & Oakland, 1979; Swartz & Gorman, 2003), scores from standardized reading and math tests (Tesiny et al., 1980), scores from standardized math tests only (Aiken, 1970), teacher ratings of work/ study habits (Tesiny et al., 1980), quartile ranking of child's placement in class with respect to grades (Tesiny et al., 1980), and whether the student is passing or failing the class (Matuszek & Oakland, 1979). Levels of achievement motivation (Accordino et al., 2000; Kirkcaldy & Siefen, 1998) and achievement attributions (Borden et al., 1987), as obtained through self-rating scales, have also been obtained, yet, as

discussed previously, these indicators reflect different constructs, providing measures of motivation or cognitive perceptions of academic outcomes rather than actual performance.

Often choices of indicators reflect the specific purpose of the researchers; however, more often, these differences point to a general lack of consensus as to how to best define school achievement. This lack of agreement is also carried over into the issue of single versus multiple measures of achievement. In the same group of studies, some used multiple measures (Accordino et al., 2000; Matuszek & Oakland, 1979; Swartz & Gorman, 2003; Tesiny et al., 1980), while others used only single measures (Aiken, 1970; Ameringen, 2003; Borden et al., 1987; Dalley et al., 1992; Durbrow et al., 2000; Juvonen et al., 2000; Kirkcaldy & Siefen, 1998).

Perhaps the diversity of approaches to assessing levels of achievement also reflects the predominance of correlational studies in examining childhood and adolescent depression and achievement. Because correlational research does not require levels of achievement to function as variables, there is less concern in selecting the most appropriate or comprehensive indicator(s). Choice of indicator, in this case, is more a function of the study's nature and research design. When level of achievement serves as a dependent or independent variable within the context of an experimental design, deciding how to best operationalize achievement becomes a more important consideration.

In the current study, the measure of achievement serves a dynamic purpose and functions as the dependent variable, which must be able to fluctuate in response to changes in the independent variable, in this case the effects of a comprehensive group treatment for depression. Obviously, the selection of an indicator should favor measures that are sensitive to changes occurring over relatively short periods of time. This would seem to exclude measures such as

overall grade point average, scores on standardized achievement tests, school withdrawal, and passing or failing a class.

A more promising indicator would be ongoing cumulative percentages obtained separately for each class or subject area. Because running percentages are almost universally used to reflect levels of overall student achievement in a class, they represent a ready-made source of data that teachers can easily produce. Almost invariably, cumulative class percentages reflect levels of performance on homework assignments, tests, and quizzes; assignments completed and turned in; and extra credit assignments undertaken. From a research standpoint, they require less extra work from the teacher and increase the likelihood that progress will be monitored and recorded accurately. Moreover, a percentage can be calculated at any point by converting the cumulative points earned and total number of points possible for the class into a percentage. (Usually, at the end of a marking period or semester, these percentages are converted into letter grades or grade points, which often serve as a central consideration in making important educational decisions, including eligibility determination for special education and other services provided by the schools.) Perhaps most importantly, these percentages can be obtained at selected intervals – weekly, bimonthly, monthly, or for each marking period – and register sensitive changes in level of academic performance. Composite percentages can be easily calculated for individual subjects.

Other promising indicators of gains or losses in levels of achievement include teacher recordings of weekly percentages of work turned in and completed satisfactorily (i.e., 70% or better) or, conversely, the percentage of assignments not turned in, or turned in but not of an acceptable quality. Work completion is a related but somewhat different constituent of academic achievement in comparison to cumulative percentage. Students with academic, behavioral, and

psychological problems often do not complete and hand in homework and in-class assignments, resulting in poor grades and low achievement outcomes. Students with learning disabilities, for instance, fail to complete assignments at a rate nearly two and a half times that of students without disabilities (Polloway, Foley, & Epstein, 1992). Although there does not appear to be data available on the homework completion rates for depressed students in relation to their peers, clearly assignment completion is the cornerstone – if not the chief prerequisite – for improved achievement outcomes. Invariably, assignment completion also contributes to cumulative percentages in a given class.

An additional dynamic indicator might be based on results of teacher ratings of a student's achievement over a given period. This could involve the use of a Likert scale, having teachers rate a student along a given numeric range for each of several relevant areas of achievement, areas such as work completion, quality of work, quantity of assignments completed, or classroom participation. The teacher could complete the scale at selected time intervals during the semester or marking period. Of course, this approach to measuring achievement may be compromised somewhat by subjective factors inherent in the rating process; percentages for given areas may yield more accurate results. Moreover, such a rating system presupposes fidelity to a focused, periodic monitoring of a student over a given time period, maintaining consistency in time intervals. It is questionable whether it is realistic to expect such fidelity across raters within the environment of an average public high school, where teachers' resources are often overtaxed.

Thus, in spite of the potential usefulness of multiple indicators in providing a comprehensive picture of school achievement, the current study includes cumulative class percentages only, due to the widespread use and general availability of this data. In addition, as

noted, they incorporate multiple sources of outcomes related to academic achievement. Using cumulative percentages for a given time interval, baseline, treatment, and follow-up data can be obtained.

The purpose of the current study then is to determine whether depressed students participating in the *Strong Teens* program showed increased academic achievement as determined by cumulative class percentage. Furthermore, this hypothesis – that participation in this group treatment program leads to improved academic performance – predicts that subjects in the treatment group will show more favorable outcomes than subjects in either the comparison (Events) or control (non-treatment) groups. Perhaps within a larger context, this study seeks to address whether the *Strong Teens* program – in its most current published form directed at promoting “emotional resiliency” for a broad spectrum of youth with emotional and behavioral problems – is effective both in terms of specifically reducing levels of depression and increasing academic achievement. Secondly, this study carries with it an intention to stimulate further discussion and investigation into the most appropriate and practical indicators for assessing academic achievement within the schools for students suffering from depression.

Promoting and Implementing Evidence-Based Interventions in the Schools

School psychologists have an important role in making sure that interventions conducted within the school setting to address learning, psychological, and behavioral problems have a solid empirical foundation. Given the considerable time and resources invested at all levels in addressing the diverse needs of students, it would seem reasonable to assume that school personnel would consistently adopt only interventions with proven efficacy. Yet, this has not been the case, and school psychologists have encountered often formidable obstacles in promoting evidence-based interventions (EBIs) in the schools (Kratochwill & Shernoff, 2004).

In spite of coordinated efforts across disciplines – psychology, medicine, education, and prevention science - to advance the use of EBIs in practical settings, Kratochwill and Shernoff point to the “transportability of EBIs to practice” as one of the “most serious” challenges (p. 35).

Kratochwill and Shernoff identified four central issues that explain this apparent disconnect between research and practice. The first of these issues involves the emergence of multiple groups focused on generating empirical support for their own intervention programs, creating a “diversity of efforts” that results in “challenges for consumers” (p. 36). A second issue is that EBIs do not always lend themselves to the practical demands of individual schools and districts. In spite having knowledge of the research support for a given intervention, school psychologists often must take into account the time, personnel, and resources available for implementation and monitoring. Third, some school psychologists allow confidence in their own clinical judgment to override the selection of an intervention supported by research; moreover, practitioners may have biases or philosophical aversions to, for example, some scripted programs or programs which involve adherence to a manual. Finally, the authors stress that the school psychologist – as well as teachers and other support staff - may not have sufficient training in administering EBIs effectively, constituting yet another barrier to evidence-based practice.

To counter these problems, Kratochwill and Shernoff outlined a number of strategies, beginning with the identification of five areas of needs that need to be addressed:

1. The identification of effective and practical interventions through the shared involvement and coordination of the research community and school psychologists in their role as both practitioners and trainers for other involved school personnel. The authors proposed formation of EBI task forces to serve this end.

2. In translating research into practice, school psychologists need to adopt research-based guidelines in introducing interventions into the school setting, making use of procedures, administration manuals, and appropriate assessment formats for evaluating outcomes. Accompanying this is the necessity to establish the feasibility and practicality of EDIs within the educational environment in which they will be implemented.
3. Related to the previous point, according to the authors, “enhanced practice guidelines may be necessary to insure effective use of the interventions” (p. 37). Such guidelines should be followed to insure treatment effectiveness following from the efficacy established in the course of clinical research.
4. Professional development and training programs for researchers, school psychologists, trainers, and other involved school personnel are vital to building competence and making sure EBIs are administered effectively and consistent with the research supporting their use.
5. Although the scientist-practitioner model has been widely adopted within graduate psychology programs, additional training is needed, particularly in evaluating outcomes for interventions conducted in the schools.

These needs can be further met by continued efforts to build “practice-research networks,” connecting a diverse group of professionals in a shared effort to promote the well-being of students.

In summary, school psychologists will inevitably fail in their efforts to incorporate EBIs if they continue to operate in a vacuum. Successful interventions in the schools depend on active and structured collaboration with the research community, as well as with teachers, administrators, and consultants. Opportunities for professional growth, reciprocal sharing,

and validation of treatment effectiveness in both school and research settings are all necessary in redressing past systemic failures.

CHAPTER III

METHOD

Participants

Twelve participants were recruited from a local high school through referral by the district's school psychologist, social worker, or counselor. Selection was based on (A) a previous psycho-educational assessment determining eligibility for special education services as a student with an emotional impairment, scoring in the at-risk or clinically significant range of depression on standardized measures, and meeting the criteria for a "pervasive mood of depression" as determined by the district Multidisciplinary Evaluation Team (MET) and/ or (B) being a student who exhibits one or more symptoms commonly associated with depression:

1. Pervasive mood of sadness or depression (DSM-IV-TR)
2. Recent verbalization or expression of suicidal thoughts, recent suicide attempt, or other display of suicidal behavior (including self-mutilation) (DSM-IV-TR)
3. Recurrent thoughts of death or statement of not wanting to live
4. Expressed feelings or worthlessness, hopelessness, helplessness, excessive guilt, or low self-esteem
5. Diminished level of interest or pleasure in daily activities (DSM-IV-TR)

All students selected were functioning at a cognitive level that made their participation in a group intervention appropriate.

Following the above guidelines, the special education social worker and the school counselor referred a total of 19 students for potential participation in the study, eight receiving special education services and 11 students receiving services within general education. 12 students were then randomly selected from the initial pool and assigned to one of three groups. Two students in the initial selection and group assignment declined participation – both special education students – and one student left the local district (also in special education).

Accordingly, from the pool of remaining students, three students were randomly selected, and combined with the nine remaining participants, for a total of 12, randomly assigned to one of three groups.

Four students were assigned to the first (treatment) group and participated in the *Strong Teens* curriculum, meeting twice a week for a total of six weeks. A comparison group, consisting of an equal number of students meeting the same criteria as those in the experimental group, met for an equal number of one-hour sessions in a comparable classroom setting to discuss current events. Finally, an equal number of students comprised a third (control) group, which did not participate in any special programming beyond that already received through general or special education services to address emotional and behavioral problems.

Participants in the control and comparison groups were given the opportunity to receive the same group intervention following the completion of the study. Students who were receiving psychological services under the criteria for emotional impairment continued to receive these services, because of obvious legal and ethical problems with withholding treatment for students in the two non-treatment (control and comparison) groups. (Care was taken to ensure that students participating in the study received comparable levels of services.) Therefore, the *Strong Teen* intervention may be viewed as supplementing those already implemented as part of a student's current IEP – for those students receiving special education services - or other counseling services provided outside of special education.

Measures

Depression

The *Reynolds Adolescent Depression Scale – Second Edition* (RADS-2; Reynolds, 2002) was administered to participants before and following treatment to determine levels of depressive symptoms. The first edition of this instrument (Reynolds, 1986), while not endowed with the long research history on depression with this age group, possesses superior psychometric properties when compared to the more-commonly used *Children's Depression Inventory* (CDI; Kovacs, 1992), an outgrowth of the *Beck Depression Inventory* (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). Internal consistency reliability on the RADS was .85 to .91, as compared to that of the CDI, which ranged from .71 to .89 (Reynolds & Mazza, 1998; Volpe & DuPaul, 2001). Stability coefficients for the RADS and CDI at a 6-week retest interval were .80 and .67, respectively, reflecting a higher test-retest reliability for the RADS. Reliability for this instrument, particularly test-retest reliability, is especially important for this study in light of its dependence on pre- and post-treatment measurements as the sole indicator of changes in level of depression.

The reliability of the second edition of the RADS (Reynolds, 2002) is comparable to its predecessor; in fact, reported coefficients are higher. Internal consistency reliabilities for the RADS-2 Depression Total, based on the school-based restandardization sample, for the age groups 14 to 16 years and 17 to 20 years, was .92 and .94, respectively. For the clinical sample, the internal consistency reliability was .94 for Depression Total. Test-retest reliability using a two-week interval for the Depression Total scale was .86 for the school sample, while that for the clinical sample was .89.

The RADS-2, an instrument developed to assess levels of depressive symptoms in students age 11 to 20, consists of 30 items selected in accordance to DSM criteria. Subscales were added to this revision and include Dysphoric Mood (DM), Anhedonia/Negative Affect (AN), Negative Self-Evaluation (NS), and Somatic Complaints (SC).

Adolescents who complete this inventory respond to brief statements using a 4-point Likert scale that reflects severity ranging from “Hardly ever” to “Most of the time.” This differs somewhat from the format of the CDI, which involves selection of one of three statements, ranging from “sad once in a while” to “sad all the time.” The RADS-2 uses a protocol that is labeled only with “About Myself” to reduce stigma and bias. One subscale of the RADS-2 measures depressed or dysphoric mood and results were included in this study. A Total Depression score was also calculated. This measure of self-reported emotions and behaviors related to depression was administered to all students at the beginning of the baseline period and again following completion of the intervention (treatment), comparison, or control condition.

Achievement

Teachers for each of the student’s classes were given the Student Achievement Form (SAF) to complete, consisting of the students’ cumulative percentage at the end of that week ($[\text{Total Points Earned} / \text{Total Points Possible}] \times 100\%$). Thus, to measure incremental achievement outcomes during baseline and intervention phases of the study, two of each student’s teachers – for both the control and experimental groups – provided data at one-week intervals from which a mean cumulative percentage was then calculated for each data point (3 prior to the intervention and 4 during intervention).

Finally, students in the intervention (*Strong Teens*) group completed pre- and post-tests, reflecting understanding of the concepts being taught in the course of the intervention group.

Thirty-five questions assessed participant knowledge and a percent correct was calculated to assess change over time.

Procedure

Pre-intervention RADS-2 ratings were obtained, as well as three weeks of baseline data (cumulative percentages at one-week intervals over the course of three weeks). The RADS-2 was administered individually by the researcher in a classroom in the school. In addition, students in the treatment group completed a pretest reflecting knowledge of concepts to be taught in the *Strong Teens* program.

Students participating in the *Strong Teens* program met for a one-hour session twice a week for 6 weeks. Achievement ratings (cumulative percentages) were obtained for each class before and throughout treatment at one-week intervals. Following the intervention, students again completed the RADS-2. Students in both control conditions were given the opportunity to participate in the program. Furthermore, manuals for the Strong Teens program were given to the school psychologist, school social worker, and counselor for use in their practice.

CHAPTER IV

RESULTS

Because the statistical power was not sufficiently large to permit between-group comparisons, results can only describe unit changes in level of academic achievement, dysphoric mood, and overall depression for individual students. Figures 1, 2, and 3 show changes in cumulative class percentages over seven weeks for baseline and treatment phases for the four subjects assigned to each group – treatment (*Strong Teens*), comparison (Events group), and control conditions, respectively. Table 1 provides cumulative percentages for each subject for each week. Subjects in the treatment group exhibited a mean increase of 6.8 percentage points from week 1 to week 7 on the achievement measure (cumulative percentage), which exceeded the number of students showing increases for both comparison and control conditions; average percentages for students in the Events group decreased by 0.2 points, and there was an increase of only 1.2 points for the control group.

However, without a between-group design with sufficient statistical power, there is little basis to conclude that there was a meaningful difference between a mean increase of 6.8 percentage points from baseline to treatment in the *Strong Teens* group and the mean decrease of 0.2 points in the Events group, as well as the mean increase of 1.2 points for the control group. Furthermore, the student displaying the greatest academic gains was in the Events group.

The argument for the effectiveness of the *Strong Teens* program is weakened further when average changes in cumulative percentages are compared among groups. Although all the cumulative percentages for all four subjects in the Strong Teens group increased slightly from baseline to treatment, as opposed to increases for only two students in the Events group and two in the control condition, examination of the average changes in percentages for individual

subjects in each group showed the largest average increases for the Events group. For the Events group, the average change between phases was 5.43%, while that for the Strong Teens group was 3.83%. The average change for the control group decreased 0.05%.

The effectiveness of the *Strong Teens* program in making meaningful improvements in the functioning of students with depression was not supported when pre- and post-treatment measures of depression were examined. Furthermore, for the two students in the Strong Teens group who completed pre- and post-tests assessing knowledge of the course’s content, although scores increased, levels of mastery were not demonstrated in both cases.

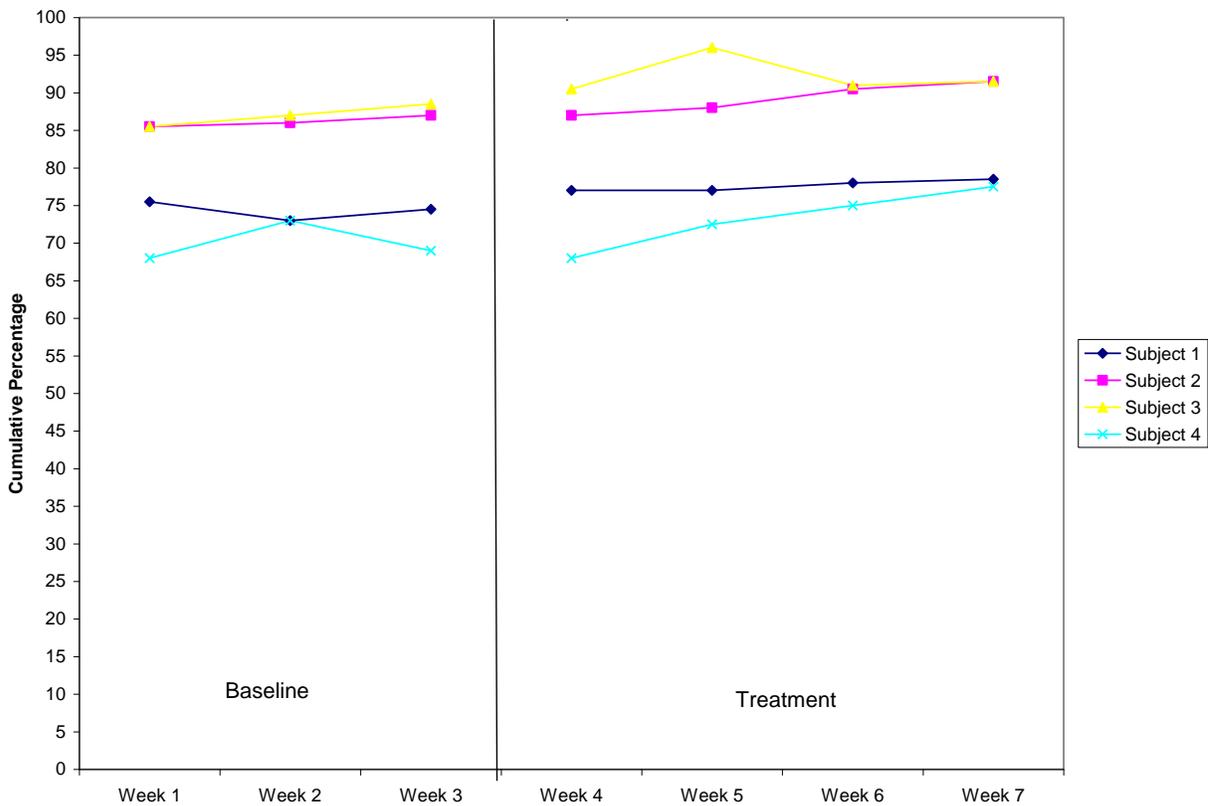


Figure 1. Cumulative percentages of academic achievement at baseline (weeks 1-3) and treatment (week 4-7) for subjects in the Strong Teens group.

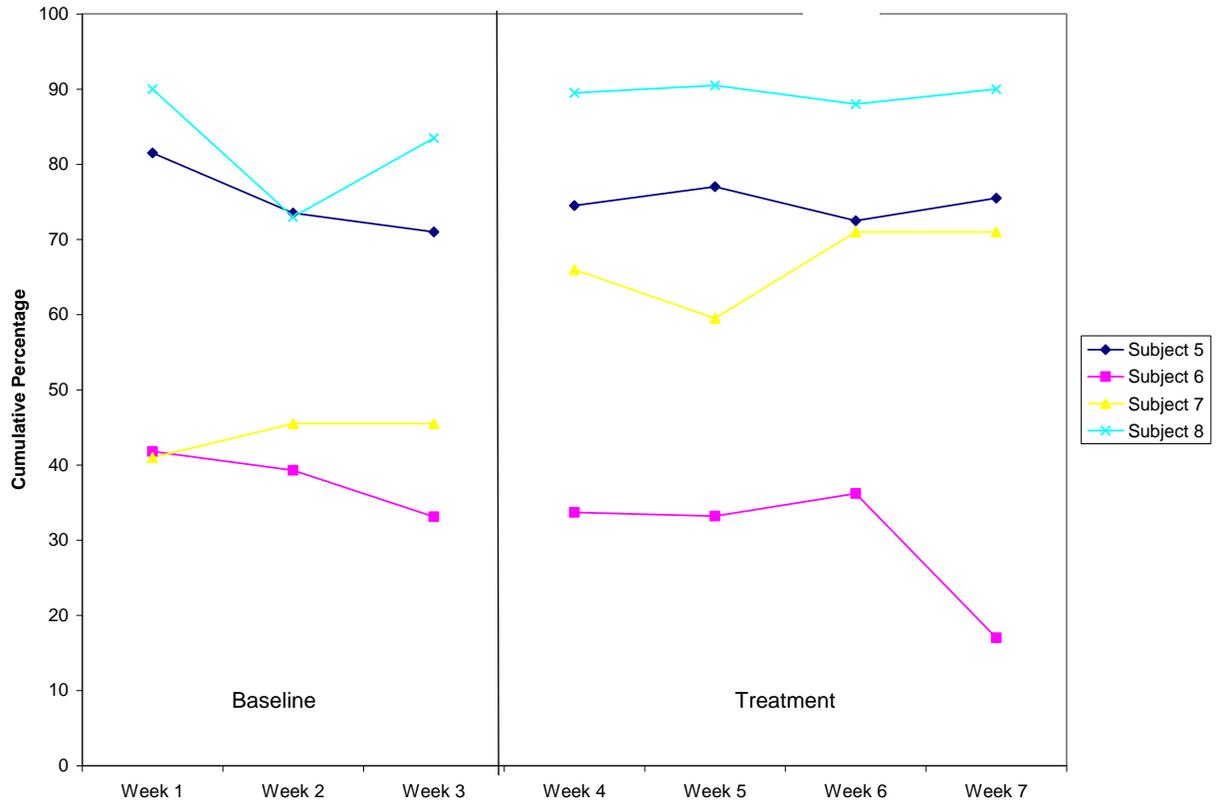


Figure 2. Cumulative percentages of academic achievement at baseline (weeks 1-3) and treatment (week 4-7) for subjects in the Events group.

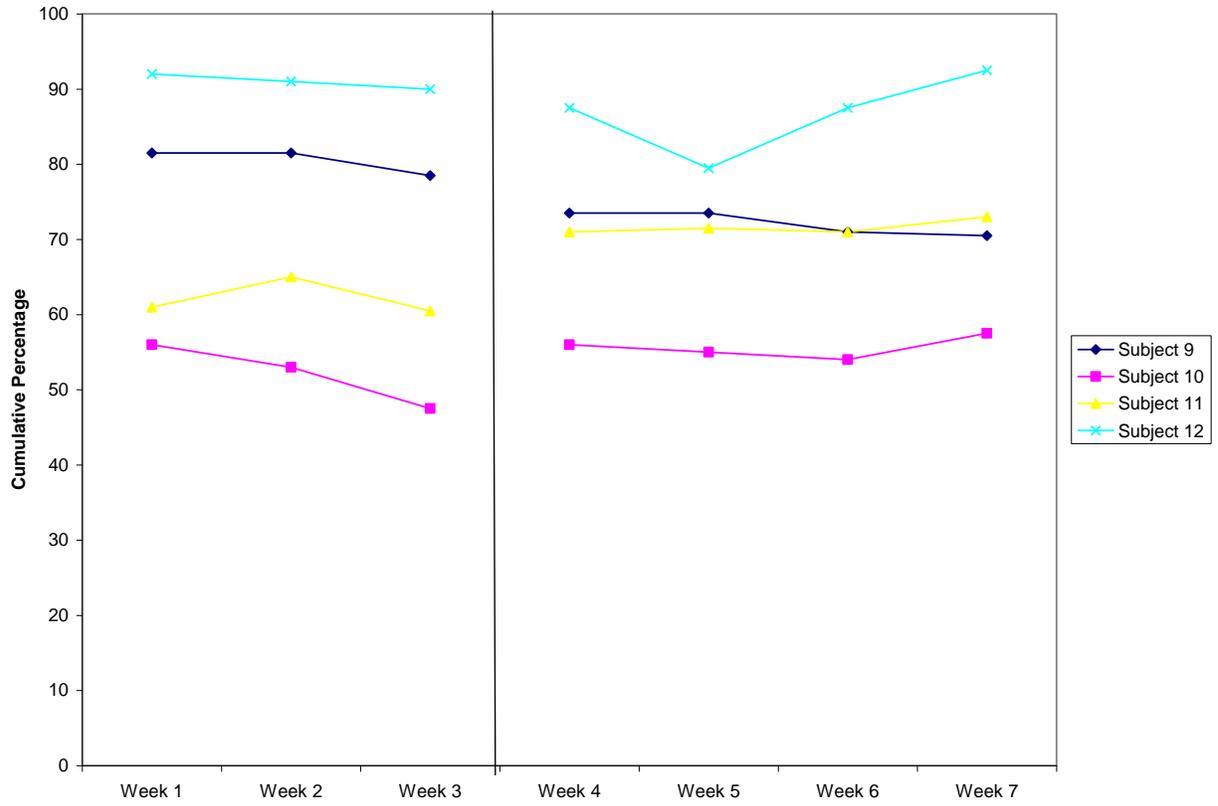


Figure 3. *Cumulative percentages of academic achievement at baseline (weeks 1-3) and treatment (week 4-7) for subjects in the control (no treatment) group.*

Table 1. *Cumulative Percentages for 12 Subjects*

Subject	Week 1	Week 2	Strong Teens					
			Week 3	Week 4	Week 5	Week 6	Week 7	
1	75.5	73	74.5	77	77	78	78.5	
2	85.5	86	87	87	88	90.5	91.5	
3	85.5	87	88.5	90.5	96	91	91.5	
4	68	73	69	68	72.5	75	77.5	
<i>M</i>	78.6	79.8	79.8	80.6	83.4	83.6	84.8	
			Events Group					
Subject								
5	81.5	73.5	71	74.5	77	72.5	75.5	
6	41.8	39.3	33.1	33.7	33.2	36.2	17	
7	41	45.5	45.5	66	59.5	71	71	
8	90	73	83.5	89.5	90.5	88	90	
<i>M</i>	63.6	57.8	58.3	65.9	65	66.9	63.4	
			Control (No Treatment)					
Subject								
9	81.5	81.5	78.5	73.5	73.5	71	70.5	
10	56	53	47.5	56	55	54	57.5	
11	61	65	60.5	71	71.5	71	73	
12	92	91	90	87.5	79.5	87.5	92.5	
<i>M</i>	72.6	72.6	69.1	72	69.9	70.9	73.4	

Note. Numerical values represent cumulative percentages of academic achievement for three weeks of the baseline phase (weeks 1-3) and four weeks of the treatment phase (weeks 4-7) for each subject who participated in the study.

Visual analysis of data is provided individually for students in each of the three groups; Figures 4 through 15 show cumulative percentages for each student throughout baseline and treatment. Table 1 provides information about individual students for each of the conditions, with special education status, referral source, and number of sessions attended being particularly relevant to interpreting results. In addition to this information, student age, grade, gender, and group assignment were included.

At its most basic, visual analysis in an AB design seeks to determine whether or not there is a meaningful increase in the outcome variable from baseline to treatment. Riley-Tillman & Burns (2009) outlined several strategies that can be used in combination to augment analysis,

and where relevant, these strategies were applied in evaluating the progress of each of the twelve students participating in this study.

Foremost, examining data in terms of change in level between baseline and treatment can be useful in detecting whether there is an increase in performance after an intervention has been implemented. Change of level is determined by calculating and comparing the means or medians for each phase. For this study, the mean was used. However, there are a number of possible pitfalls associated with this approach (Riley-Tillman & Burns, 2009), particularly if used as a stand-alone measure. First, focusing on the mean in the intervention stage may provide a distortion of progress that is made toward the end of the intervention period. Second, aberrant or extreme data points may distort or skew the mean in a way that misrepresents what is actually occurring in a given phase. Third, the use of change of level neglects to give weight to gains that may have been made toward the end of the intervention. Finally, a small number of data points in either phase – which is the case with this study – can strongly compromise the validity of the final analysis when relying solely on this strategy.

Calculating the percentage of nonoverlapping data (PND) is an additional approach to analyzing changes between phases. It is determined by identifying the data point with the highest numerical value in the baseline condition, determining the number of data points which exceed its value during the treatment phase, and calculating a percentage – essentially the percentage of data points that are above the highest baseline point. Under optimal conditions – and given an adequate number of data points in each phase – a PND of 80% or above indicates a large treatment effect (Scruggs & Mastropieri, 1998; Riley-Tillman & Burns, 2009).

Typically, change of variability is used in conjunction with an analysis of PND to determine a new range of outcomes in the intervention period to provide evidence of an

intervention effect (Riley-Tillman & Burns, 2009) and represents the range of values within each phase. However, due to the small number of data points in this study, variability is reported as it relates to inconsistency within the baseline phase, and to a lesser extent, in the treatment phase. Variability is calculated as the difference between the highest and lowest values, in this case cumulative class percentages.

Trend, although defined as the rate of change within a phase, is also useful in a strictly visual inspection within a single-subject design: More succinctly, viewing a sequence of low scores within the baseline phase, particularly one in which adjacent points are successively decreasing, followed by a sequence of increasingly higher scores in the treatment phase, would provide support for treatment effectiveness.

For each participant, figures are described in terms of level, variability, PND, and where relevant, trend, as well as the influence of other variables on the results. As noted by Riley-Tillman and Burns (2009), “all aspects of visual analysis must be considered as a package rather than in isolation” (p. 83).

Interpretation of results for each subject should also take into account the limited number of data points provided for the baseline (three) and treatment phase (four). The small timeframe for the study was largely due to restrictions imposed by the school schedule, which compromised temporal continuity between sessions; vacations, exam schedules, and school activities presented obstacles in this respect. Difficulties with initial student recruitment for the study, including obtaining consent and assent, absences, and student attrition during the treatment phase of the study also impacted the quantity and quality of data obtained. In the final weeks of the treatment phase, in addition to student attrition, teachers neglected to provide outcome data or provided it inconsistently. The need for teachers to calculate cumulative percentages for each student at the

required intervals, increased workload later in the school year, and the announcement of multiple teacher lay-offs within the school had a marked impact on the provision of data, resulting in missing or inaccurate reports of student achievement for each week of the experimental period. Although all twelve sessions of the *Strong Teens* group and the Events group were administered, because of the absence or lack of reliable data corresponding to the period during which the final four sessions were conducted, data for the treatment phase are provided only for the first eight sessions, for a total of four data points.

Because of the constricted timeframe dictated by the school's calendar, only three baseline measurements could be obtained at weekly intervals. However, the majority of students, nine out of twelve, exhibited a low degree of variability and an acceptable level of stability during baseline. All four subjects of the *Strong Teens* group had stable baselines, reducing the likelihood that changes in grade between phases is the function of a limited baseline. Subjects 7, 9, 10, 11, and 12 also displayed baseline consistency. For subjects 5 and 8, however, there was some fluctuation within baseline. Results for subject 6, while showing some variability within the baseline phase, were also impacted by floor effects. Thus, analysis for these subjects should take these factors into account.

Table 2. *Description of 12 Subjects*

Subject	Age	Grade	Gender	Status	Referred By	Group	Sessions Attended
1	16	11	Male	SE	MSW	ST	9
2	14	9	Female	GE	Counselor	ST	12
3	16	11	Female	GE	Counselor	ST	10
4	16	10	Male	SE	MSW	ST	12
5	18	12	Female	SE	MSW	Events	5
6	15	9	Male	GE	Counselor	Events	11
7	16	10	Female	GE	Counselor	Events	11
8	17	11	Male	GE	Counselor	Events	12
9	15	9	Male	GE	Counselor	No Tx	N/A
10	17	11	Female	GE	Counselor	No Tx	N/A
11	16	10	Female	GE	Counselor	No Tx	N/A
12	15	9	Female	GE	Counselor	No Tx	N/A

Note. SE = receiving special education services; GE = student in general education; MSW = special education social worker; ST = *Strong Teens* Group; Events = Events Group; No Tx = No Treatment (not assigned to either group).

Figures 4 through 7 display the cumulative class percentages for individual students in the *Strong Teens* group over the course of baseline and treatment. Subjects 1 and 2 showed consistent, although small gains for each of the four weeks of treatment. The mean cumulative percentages for subject 3, while not showing consistent gains over the weeks of treatment, exceeded the percentages during the baseline condition. For subject 4, percentages for weeks 6 and 7 exceeded those for baseline percentages calculated over the first three weeks.

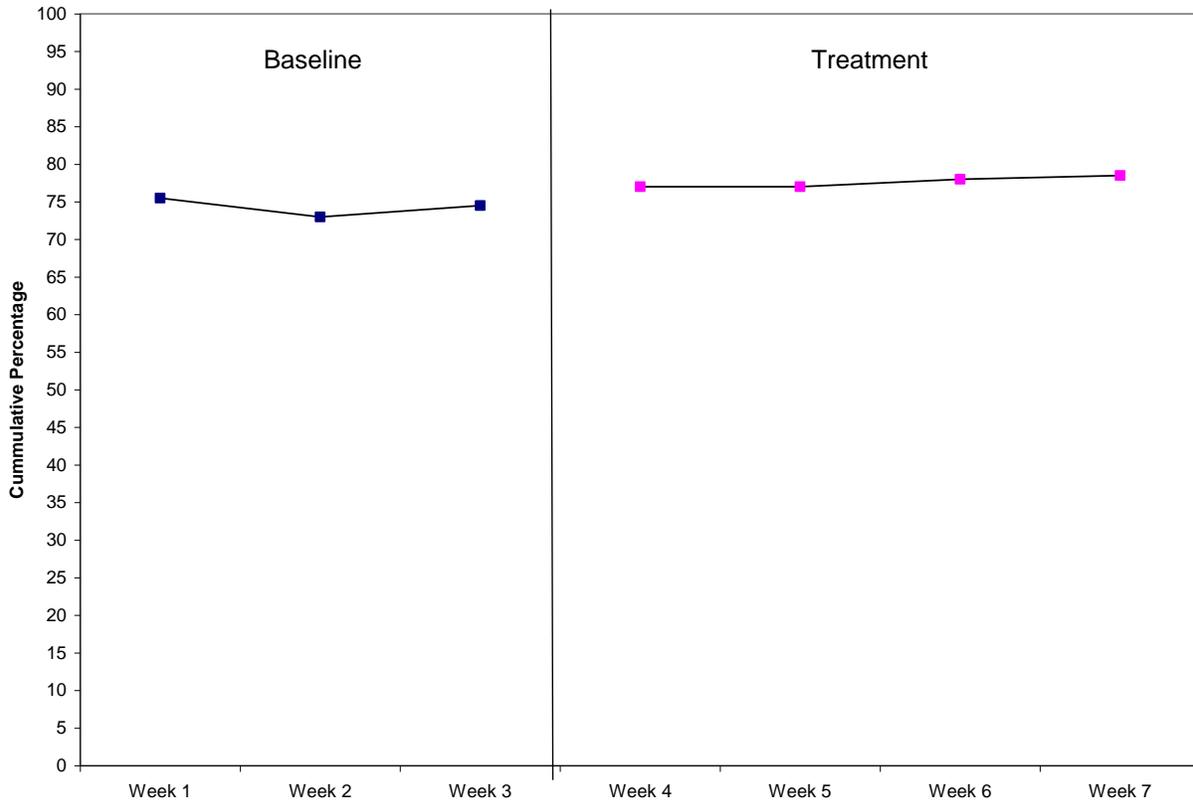


Figure 4. *Cumulative percentages over baseline and treatment for subject 1.*

Figure 4 shows class percentages for three weeks of baseline and four weeks of treatment for subject 1 of the *Strong Teens* group. This subject was referred by the special education social worker. As a student receiving special education services under the classification “emotional impairment,” he had previously undergone a comprehensive evaluation which included a clinical interview, parent and teacher interviews, rating scales from multiple raters, classroom observations, and testing to determine his level of cognitive functioning and academic achievement in multiple areas; the impact of environmental factors were also considered in the final determination of eligibility. The legal document qualifying the student for services

indicated that the student met the criteria of displaying a “pervasive mood of sadness or depression.”

In the course of the treatment phase, the student left school before the school year had ended to go with his parents, who were pursuing seasonal work out of the area. Although the student attended only 9 of the twelve sessions, these sessions fell within the period for which data were obtained. For this subject, there was a change in level, as reflected by a comparison of the mean of the data between the baseline and treatment, from 74.0% to 77.6%. There was no overlapping data between phases. Change in variability within the baseline period was small - from 73.0% to 75.5% - a difference of only 2.5 percentage points and within the C grade-level range, reflecting consistency for this phase, in spite of the few data points. Thus, this subject was maintaining a C average when the study began and maintained it through the end of the baseline period.

The change in variability for the treatment phase was also small, ranging from 77.0% to 78.5%, a difference of 1.5 points. However, in spite of the increase in level and PND of 100%, the overall increase in academic performance was unremarkable, essentially moving from the letter grade of a C to a C+ at best. Thus, it is difficult to make the case that significant academic gains were made as the result of participating in the *Strong Teens* program. Nor was a change in trend evident.

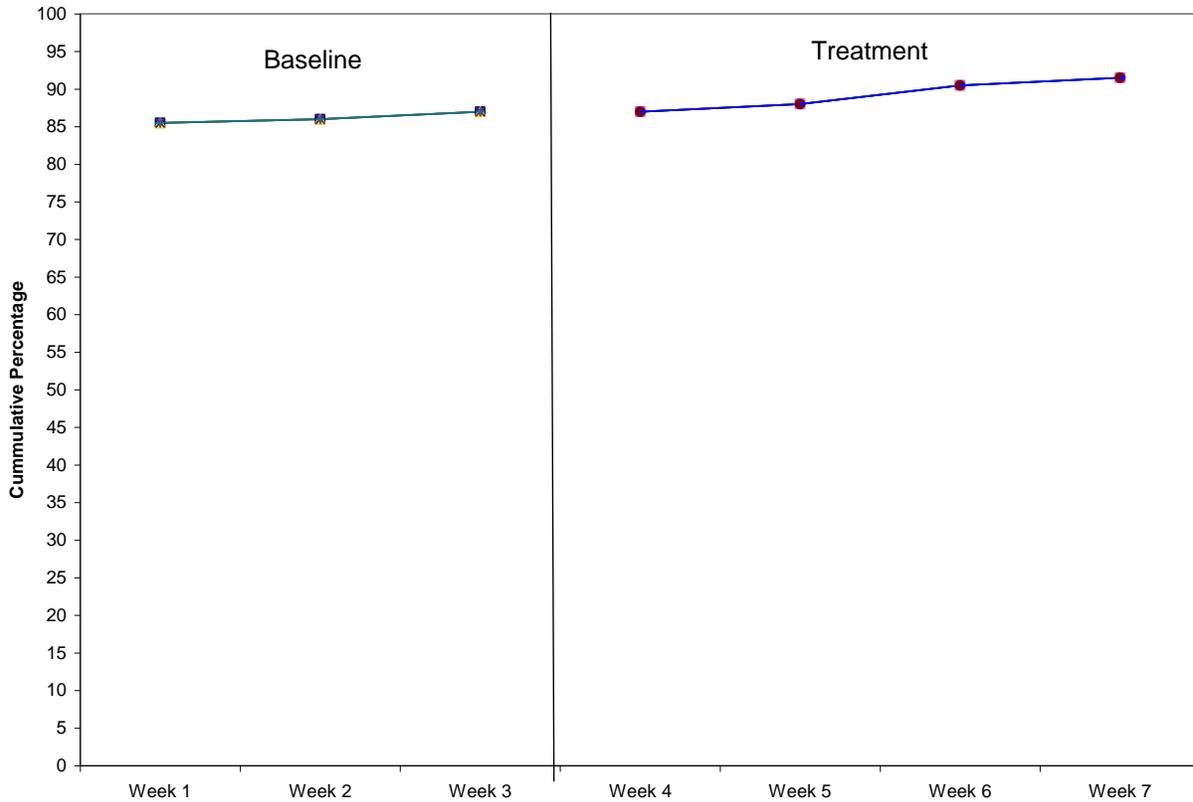


Figure 5. *Cumulative percentages over baseline and treatment for subject 2.*

Subject 2 was referred by the general education counselor, based on her clinical judgment that the student exhibited at least one of the features associated with depression as outlined in the Method section. The counselor also described stressors at home. In the absence of data from a comprehensive evaluation for depression, it is unclear whether the symptoms of depression identified by the counselor were reactive in nature, occurred as a typical, developmental response to family conflict, or were clinical in nature. Although this student participated in all 12 of the *Strong Teens* sessions, in an effort to compensate for absences from the first two sessions due to scheduled extracurricular activities, the researcher met with the student individually to cover material missed. Thus, there was a departure from the administration guidelines for Sessions 1

and 2, most notably in that these adaptations precluded interactions with other group members in the course of exercises for these sessions.

Class percentages for three weeks of baseline and four weeks of treatment for subject 2 (Figure 5) also showed a change in level; the mean of the data between the baseline and treatment increased from 86.2% to 89.3% with a PND of 75%. Again, there was no change in trend, with cumulative percentages consistently increasing; data overlapped between week 3 of the baseline phase and week 4, the first week of the treatment phase. Changes in variability within a phase ranged from 1.5 percentage points during baseline – again reflecting some consistency in performance - to 4.5 points for the treatment phase. As with subject 1, however, in spite of an increase in level, with only one overlapping data point between phases, the increase in actual grade level was small, essentially going from a B to a B+. Moreover, visual inspection of data show a consistent increase from the beginning of baseline to the end of the final value recorded for the treatment phase, making it difficult to attribute this small increase in cumulative percentage to participation in the *Strong Teens* program.

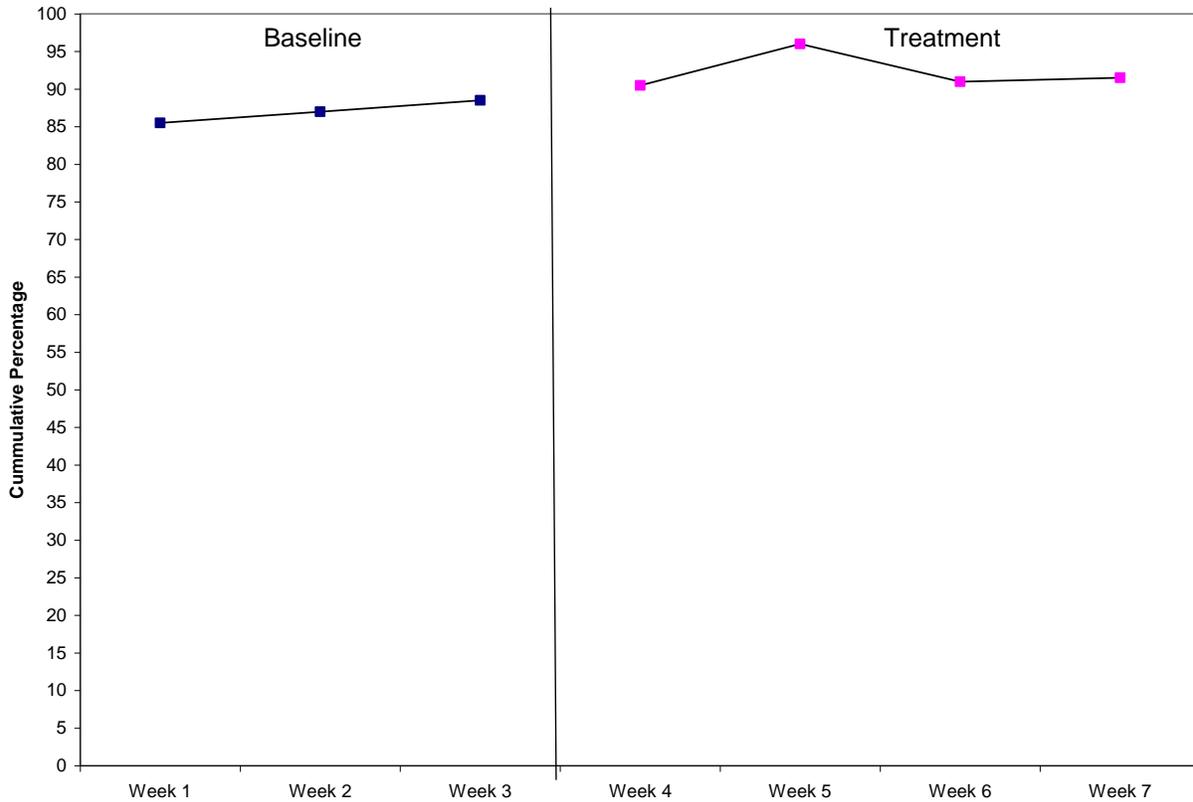


Figure 6. *Cumulative percentages over baseline and treatment for subject 3.*

Also referred by the school counselor, subject 3 attended the first 10 sessions of the program. She displayed a consistently flat to sad affect during sessions and was quiet and withdrawn. Because of the lack of information from a comprehensive evaluation or from other sources, it is difficult to provide a clinical profile for this student.

Figure 6 shows class percentages for baseline and treatment for the subject. As with the other two subjects in the *Strong Teens* group, there was a change in level, in this case from 87.0% for baseline to 92.3% for treatment, with a PND of 100%. Once more, there is no change in trend. Changes in variability within a phase ranged from 3.0 percentage points for the baseline phase to 5.5 points for the treatment phase, again supporting some level of stability during baseline, remaining in the high C to C+ level. As with the other students, the change in

level and high PND does not translate into a substantial increase in academic performance (a B+ up to an A-). This subject's high level of academic performance may be attributed to high achievement motivation. Once more, participation in the treatment program does not appear to be associated with enhanced academic attainment.

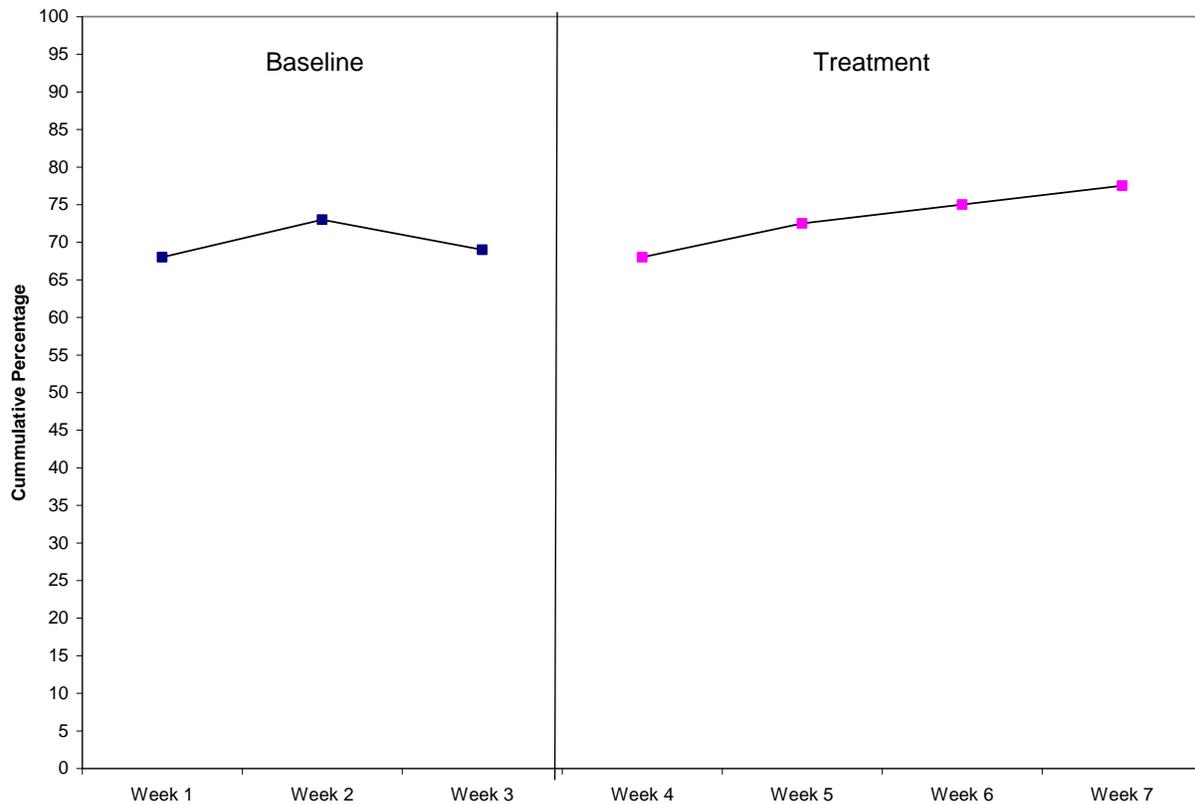


Figure 7. *Cumulative percentages over baseline and treatment for subject 4.*

Subject 4 was receiving special education services under the classification “emotional impairment,” meeting the criteria for a “pervasive mood of sadness or depression.” He attended all 12 sessions. Baseline and treatment phases (Figure 7) once again showed a change in level; the means of the data for baseline and treatment increased from 70.0% to 73.3%. As with the three other subjects in the intervention group, there was no change in trend. Changes within the baseline phase ranged from 5.0 percentage points, a fluctuation between the letter grade of a D+

and a C; at the same time, the student was receiving a D+ when the study began and was receiving that grade at the end of baseline. The change in variability was 9.5 points for the treatment phase. Data overlapped between phases (a PND of 50%), although the last two points of the treatment phase exceeded points from baseline. Once more, the change in level did not reflect a sizable improvement in academic performance; as noted, the subject's letter grade during baseline ranged from a D+ to a C, remaining in the low C range during treatment.

For each student in the Events group, Figures 8 through 11 display the mean class percentages over the course of baseline and treatment. Two of the four subjects in the Events group (Figure 2) displayed a decrease in level between phases, while two showed increases. However, the two students showing increases displayed the greatest improvement in mean percentages and corresponding grades from baseline to treatment compared to all other subjects in the study.

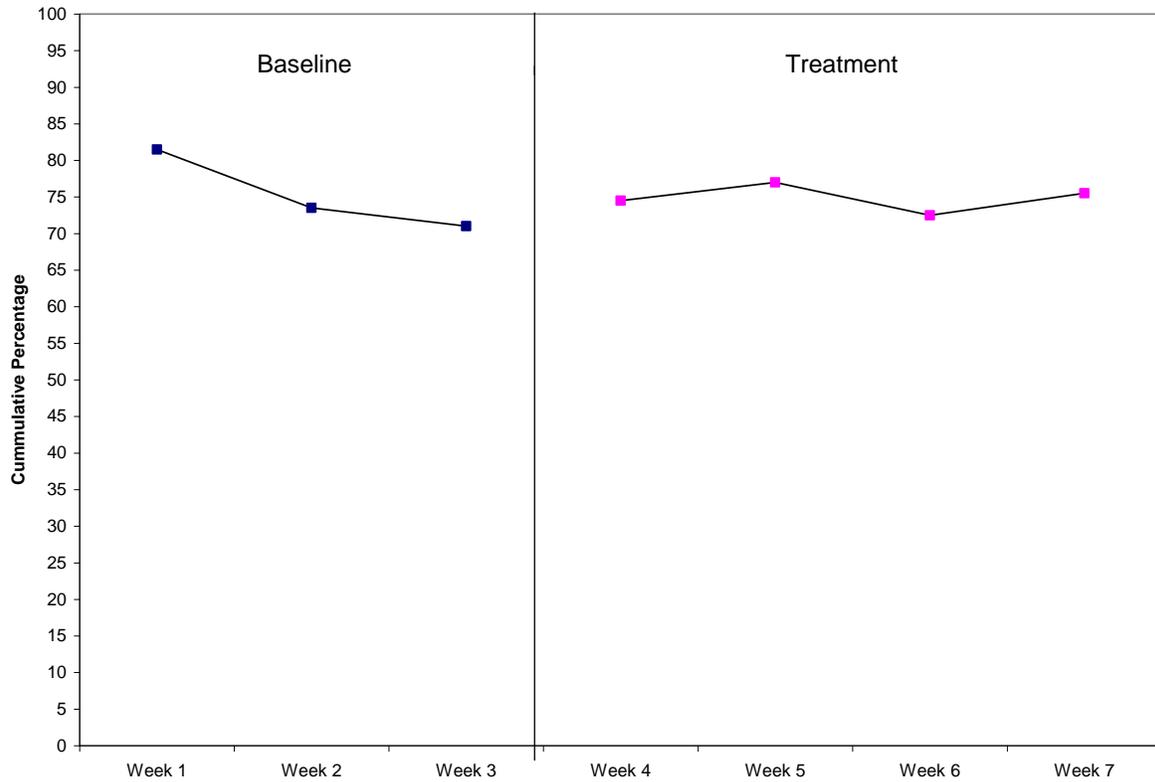


Figure 8. *Cumulative percentages over baseline and treatment for subject 5.*

Subject 5 (Figure 8), who was assigned to the Events group, was receiving special education services as an emotionally-impaired student. She attended only 5 of the 12 sessions, at times avoiding the researcher or refusing to attend the group. She left school before the end of the school year due to a pregnancy. There was no positive change in level from baseline to treatment; her mean baseline percentage was 75.3%, decreasing slightly to 74.9% for the treatment phase. There was a PND of 0%. Variability in percentage points ranged from 71.0 % to 81.5% for baseline, a difference of 10.5 percentage points, reflecting a fluctuation between letter-grade levels. The student was maintaining a B- average prior to the beginning of the study and a C- at the end of the baseline phase. The change in variability during the treatment phase was 4.5 %, ranging from 72.5 % to 77.0 %. No change in trend was evident.

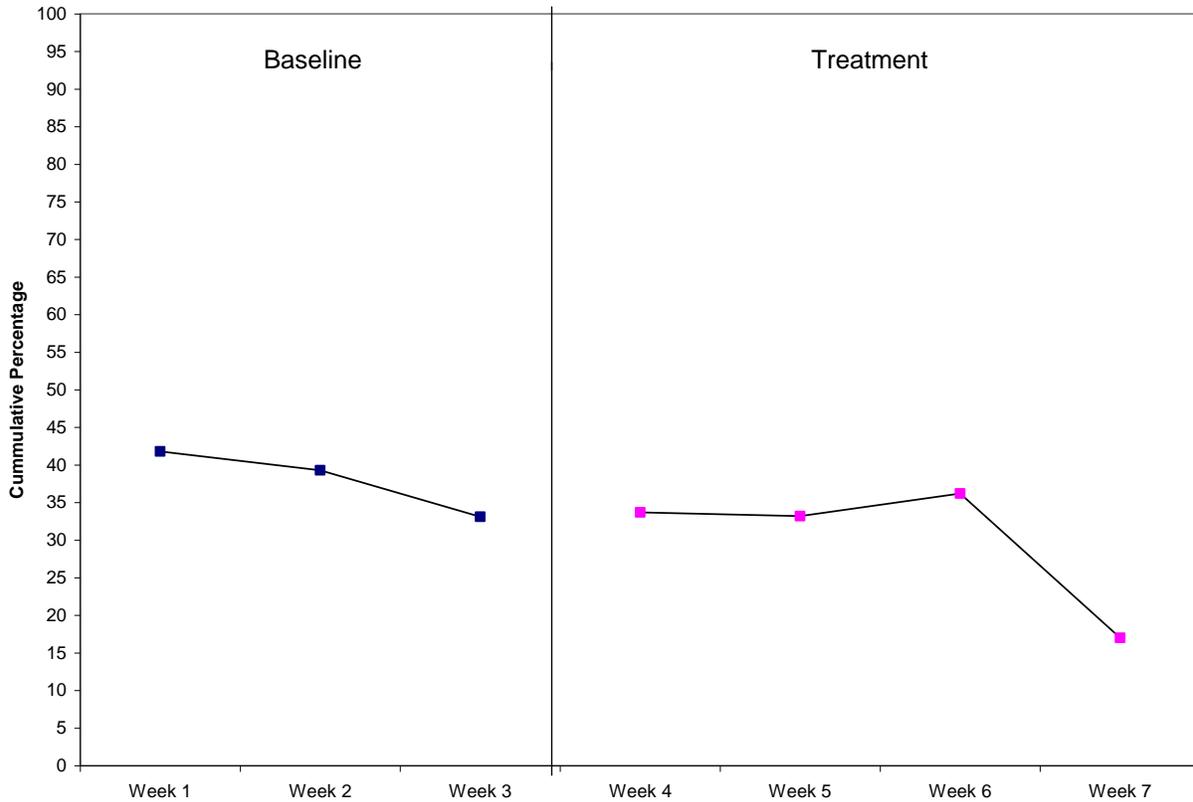


Figure 9. *Cumulative percentages over baseline and treatment for subject 6.*

Also in the Events group, subject 6 was referred by the school counselor and attended 11 of the 12 group meetings. Data for this subject (Figure 9) reflect a decrease in level from 38.1% to 30.0%, again with a PND of 0%. Because of the extremely low percentages for this student, floor effects may be operative, compromising the results of analysis. Variability in baseline and phases was 8.7% and 19.2%, respectively. As with other subjects, there was no change in trend.

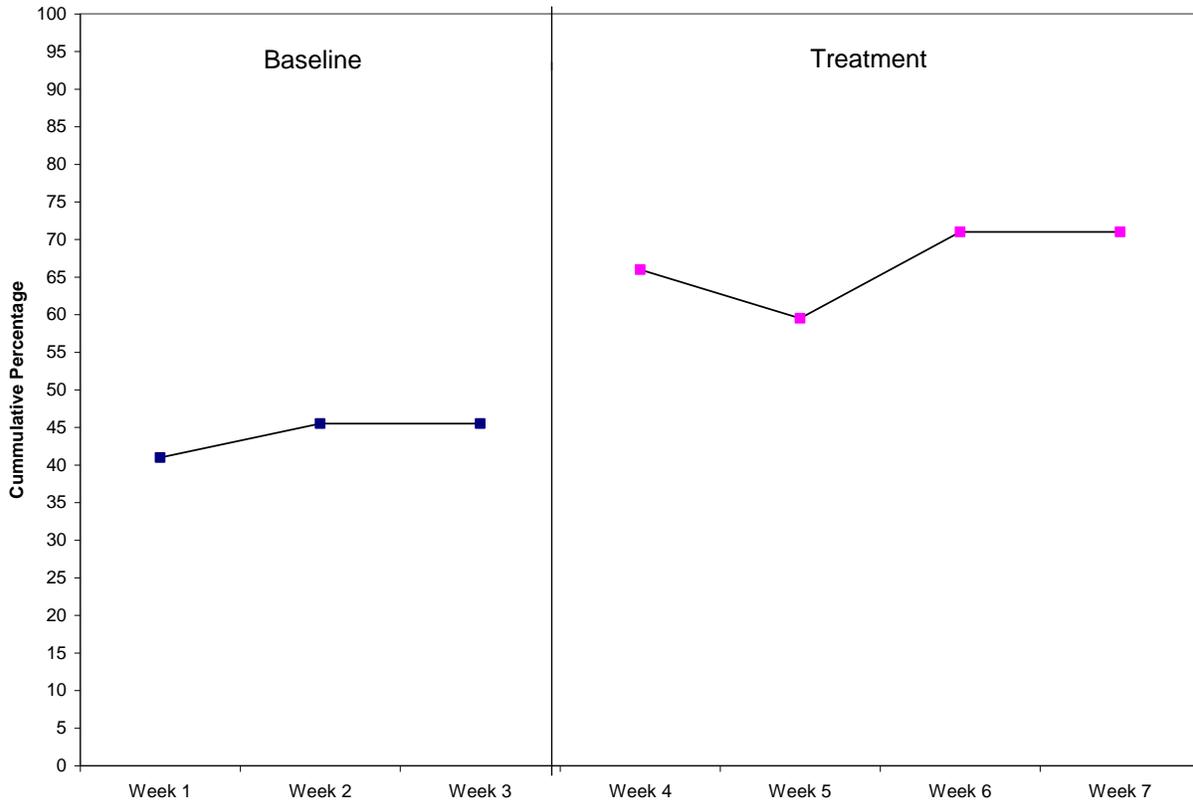


Figure 10. *Cumulative percentages over baseline and treatment for subject 7.*

Subject 7, also referred by the school counselor, attended 11 of the 12 Events group sessions. She was absent only from the first session, her absence from school that day to attend the funeral of a close family member. In spite of this loss, she participated actively in the group and appeared to enjoy the interactions with the researcher and other group members. During the course of the group, the subject’s mother phoned the school to report that she felt her daughter was benefiting from the group.

There was a substantial increase in level for this subject – from 44.0% to 66.9%, with a PND of 100%. Variability was 4.5 points for baseline and 11.5 for treatment. This increase in level of 22.9 percentage points far exceeds that of any of the other subjects in the study,

including students in the *Strong Teens* group. In terms of grades, the student increased from a failing grade during the baseline period to a D in the treatment phase; moreover, her final percentages for weeks 6 and 7 placed her at a C-. There is also some support for a change in trend, although percentage values for baseline increased slightly. At the same time, baseline percentages that were fairly stable.

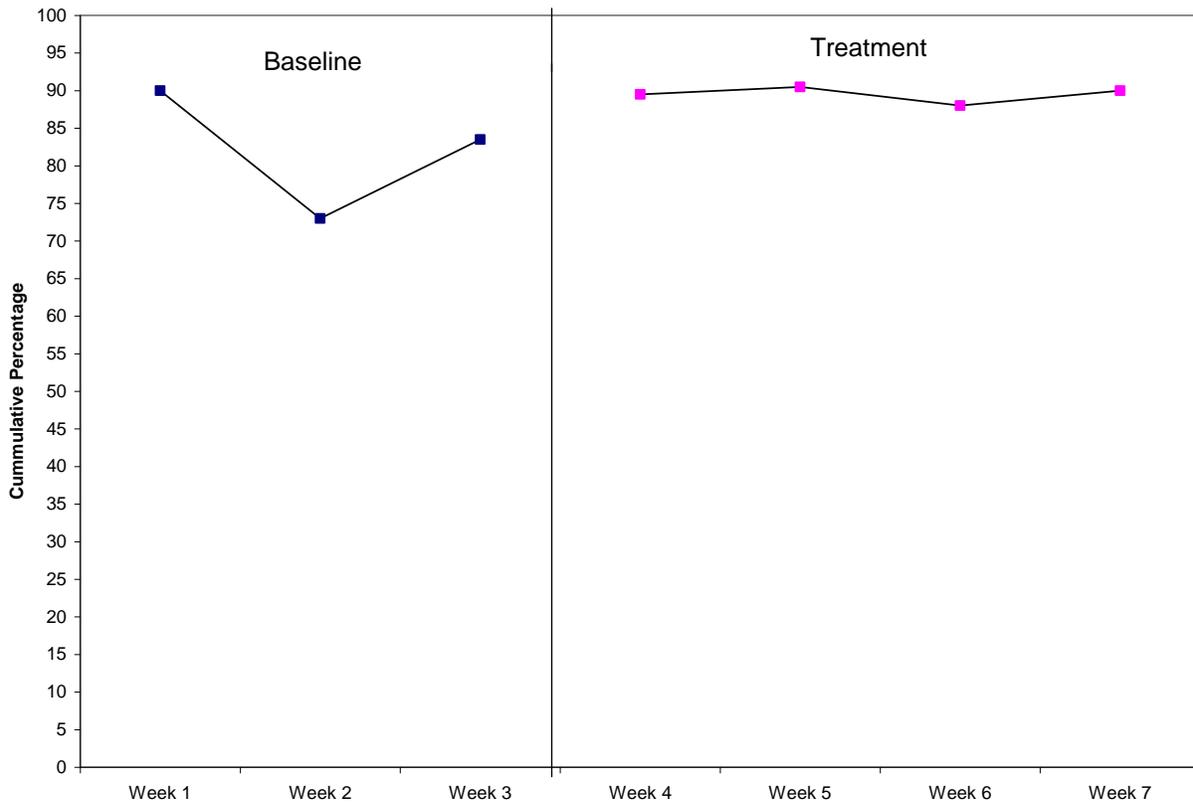


Figure 11. *Cumulative percentages over baseline and treatment for subject 8.*

There was a modest increase in level for subject 8, from 82.2% to 89.5%. At the same time, this translates into an increase from a B- to a B+, constituting the second greatest improvement in academic performance from baseline to treatment, as compared to all other

subjects in the study. The PND for this subject was only 25%, due in large part to the wide variability in percentages in the baseline phase. This wide fluctuation, ranging from 73.0% to 90.0%, constitutes a 17.0 point difference that extends two grade levels. At the same time, this fluctuation creates instability in the baseline phase, making it difficult to make conclusions about increases in the treatment phase. By contrast, variability for the treatment phase was relatively small, ranging from 88.0% to 90.5%, a difference of only 2.5 percentage points. There was no change in trend. Subject 8 attended all 12 sessions and had been referred by the school counselor.

As with the Events group, two of the four subjects in the control (no treatment) group showed an increase in level, while two displayed decreases. Individual analysis is provided for each of the subjects for Figures 12 through 15. All four of the subjects in this group were not receiving special education services and were referred by the school's counselor.

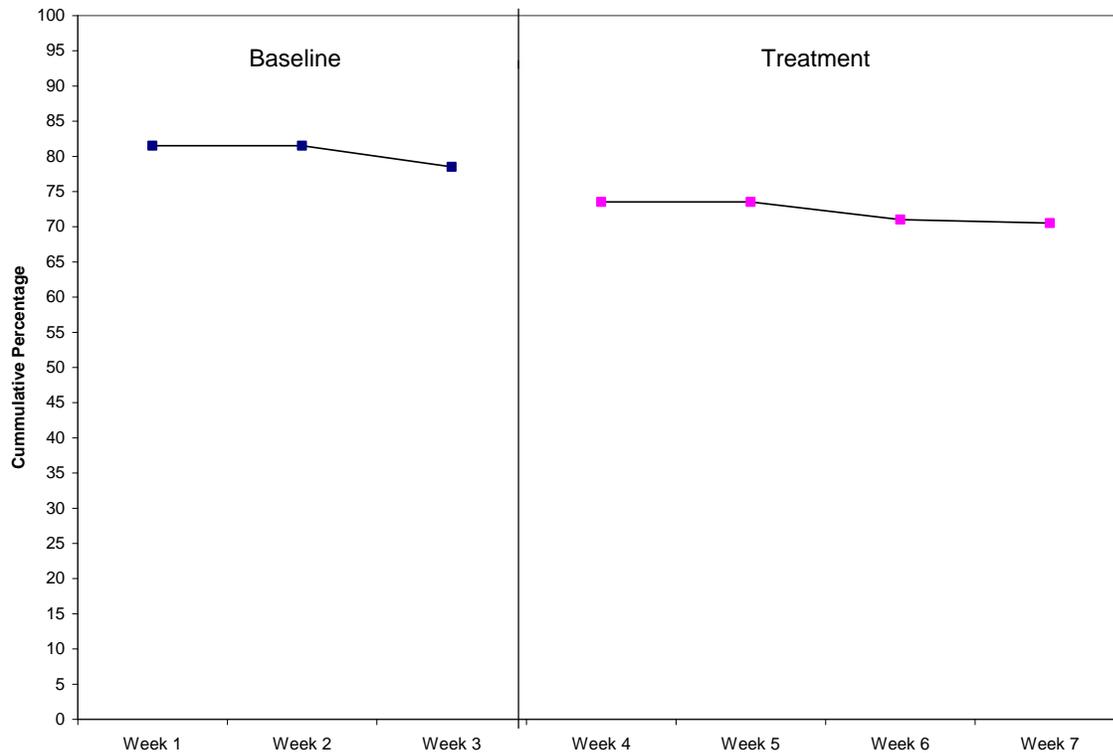


Figure 12. *Cumulative percentages over baseline and treatment for subject 9.*

The level for subject 9 decreased from 80.5% to 72.1% with a PND of 0%. The variability for both phases was 3.0 percentage points. Thus, cumulative percentages at the beginning and end of baseline were stable. This student displayed fairly significant drops in letter grades, from a B- to a C+ during the treatment interval down to a C- to a low C in the treatment phase. There was no change in trend.

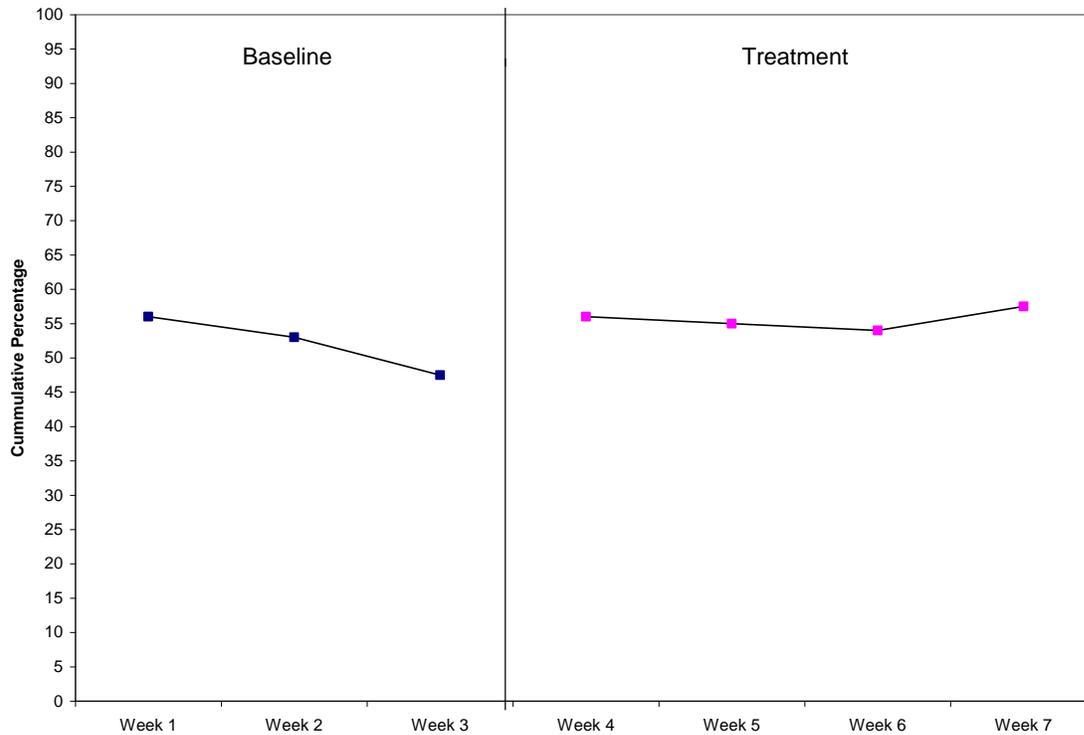


Figure 13. *Cumulative percentages over baseline and treatment for subject 10.*

Subject 10 was also referred by the school counselor. The mean between phases for subject 10 increased from 52.2% to 55.6%, although the PND was only 25%. Variability in baseline and treatment phases was 8.5 points and 3.5, respectively. Subject 10 displayed cumulative percentages reflecting a failing letter grade throughout both phases.

The mean between phases for subject 10 increased from 52.2% to 55.6%, although the PND was only 25%. Variability in baseline and treatment phases was 8.5 points and 3.5, respectively.

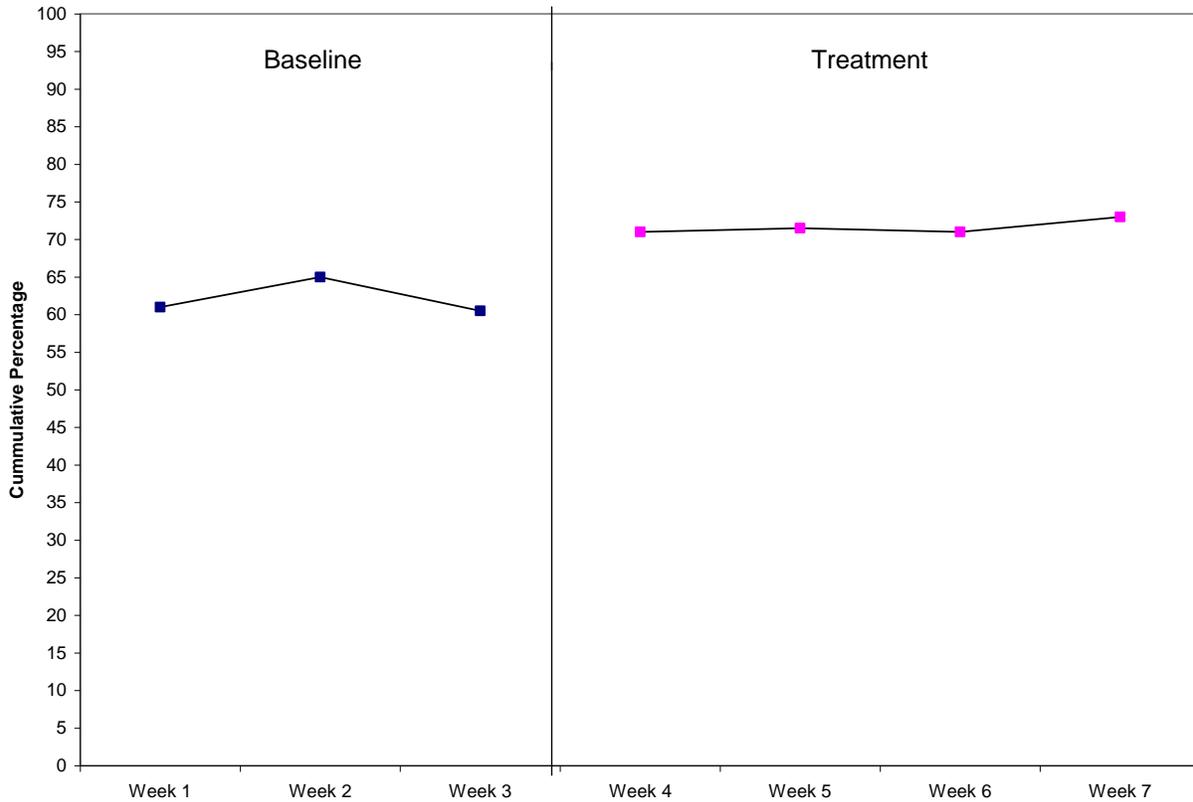


Figure 14. *Cumulative percentages over baseline and treatment for subject 11.*

Data for subject 11 indicated an increase in level from baseline to treatment of 62.2% to 71.6% with a PND of 100%. Variability ranged from 60.5% to 65.0% (4.5 percentage points) for the baseline phase. The subject’s cumulative percentage at the beginning of the study was 61.0%; at the end of baseline, it was 60.5%, a D- in each case. The variability ranged from 71.0% to 73.0% (2.0 points) for the treatment phase. In terms of grades, this student increased a whole grade level from a D- up to a C-, an increase that exceeds that of all four subjects in the *Strong Teens* group. No change of trend was evident. Information explaining this improvement was unavailable.

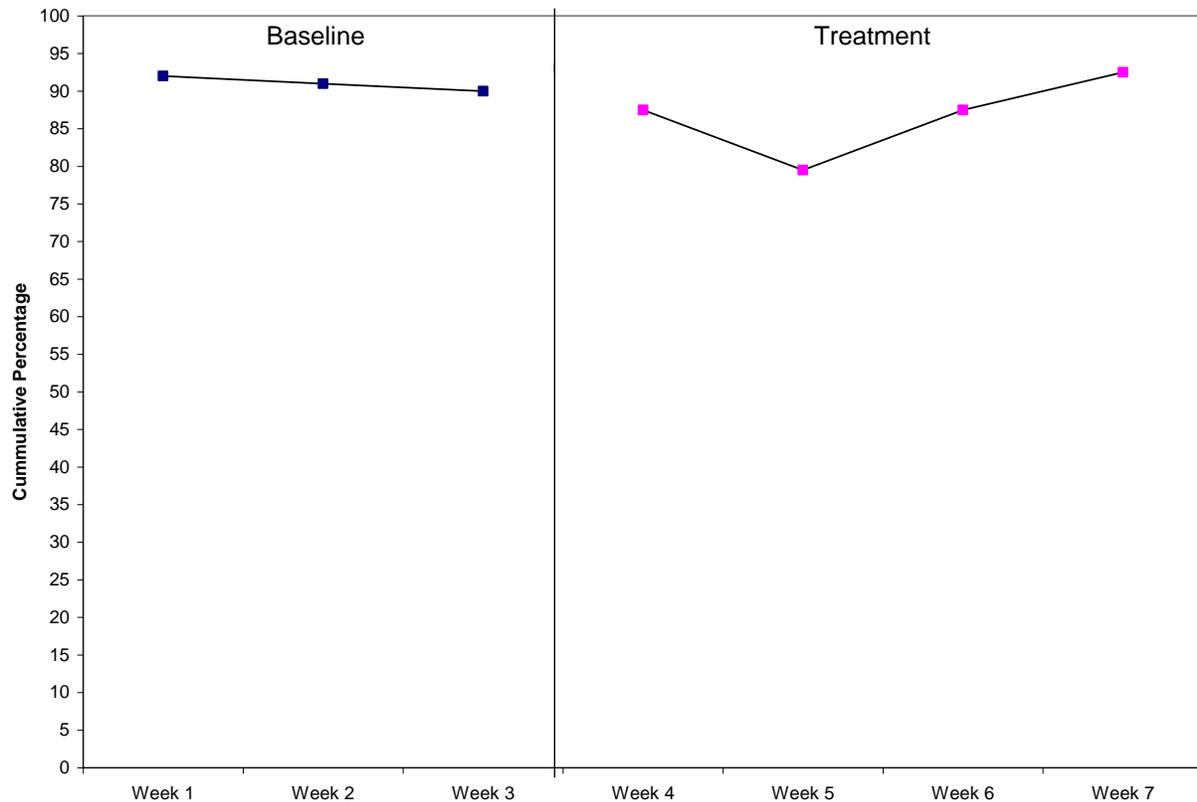


Figure 15. *Cumulative percentages over baseline and treatment for subject 12.*

For subject 12, there was a decrease from 91.0% to 86.8%, with a PND of 25%. The variability for baseline was 2.0; for treatment, it was 13.0. This small change in variability supports baseline stability for this subject, in which an A- was maintained from beginning to end. In spite of the decrease from an A- during baseline to a B from baseline to treatment, when progress was based on the mean for each phase, the final cumulative percentage recorded for week 7 of the treatment phase indicated that the student was again performing in the low A range. Although the school counselor had referred this student for the study based on her clinical impressions that she exhibited signs of depression, her high level of academic performance did not appear to be significantly affected.

In addition to obtaining weekly achievement data for each of the twelve subjects, levels of overall depression and depressed mood were obtained before and after treatment using the RADS-2. The RADS-2 uses the following descriptions for interpreting levels of clinical severity for Total Depression T-scores. T-scores from 61 to 64 reflect mild clinical depression. Scores from 65 to 69 indicate a moderate level of depression, and scores of 70 and above suggest severe clinical depression. T-scores below 61 are considered to be in the normal (non-clinically significant) range.

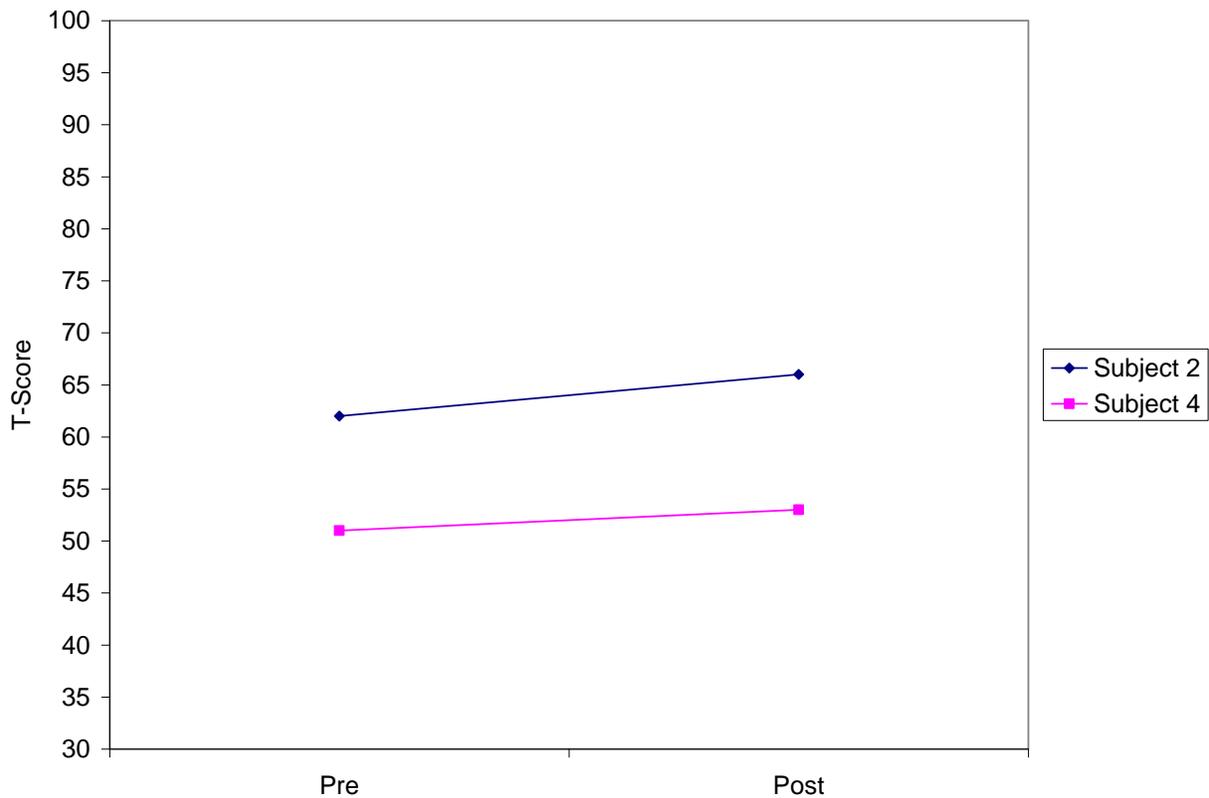


Figure 16. *RADS-2 Depression Total pre- and post-test for the Strong Teens group.*

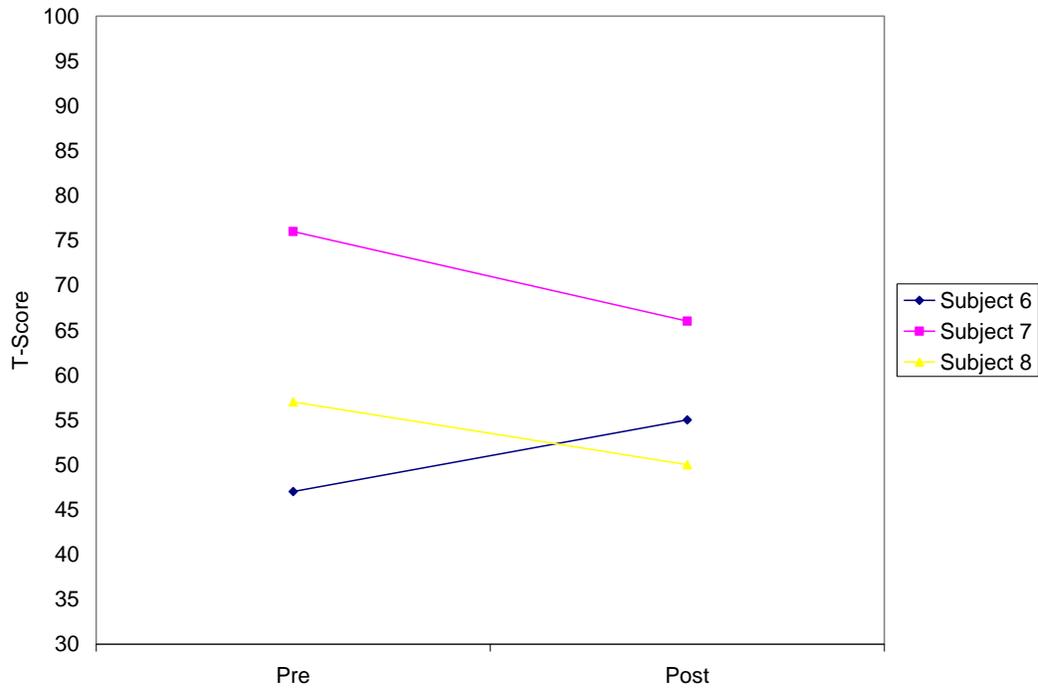


Figure 17. *RADS-2 Depression Total pre- and post-test for the Events group.*

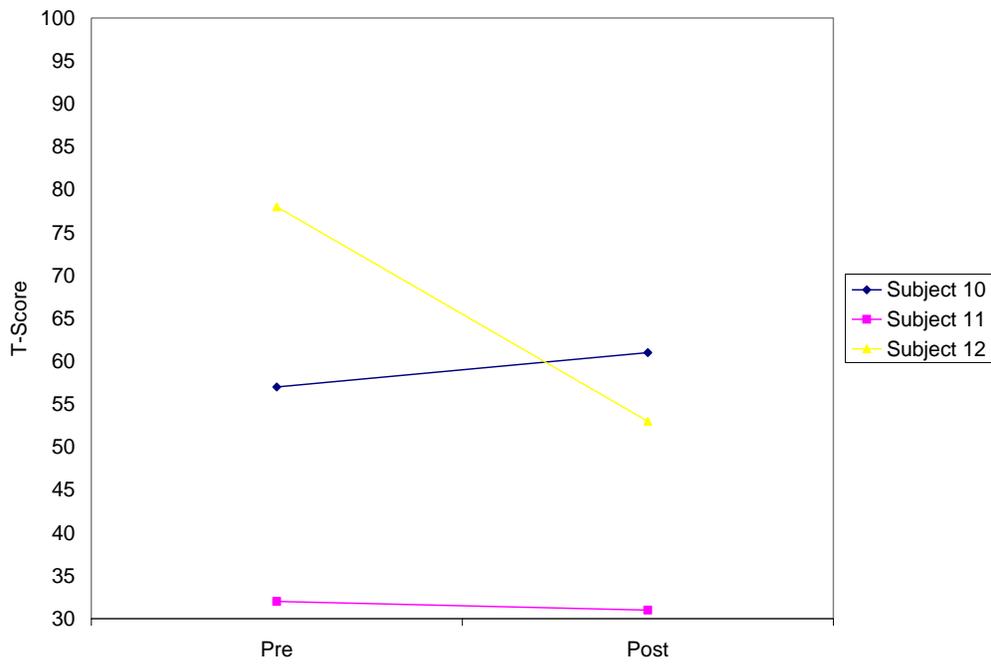


Figure 18. *RADS-2 Depression Total pre- and post-test for the control group.*

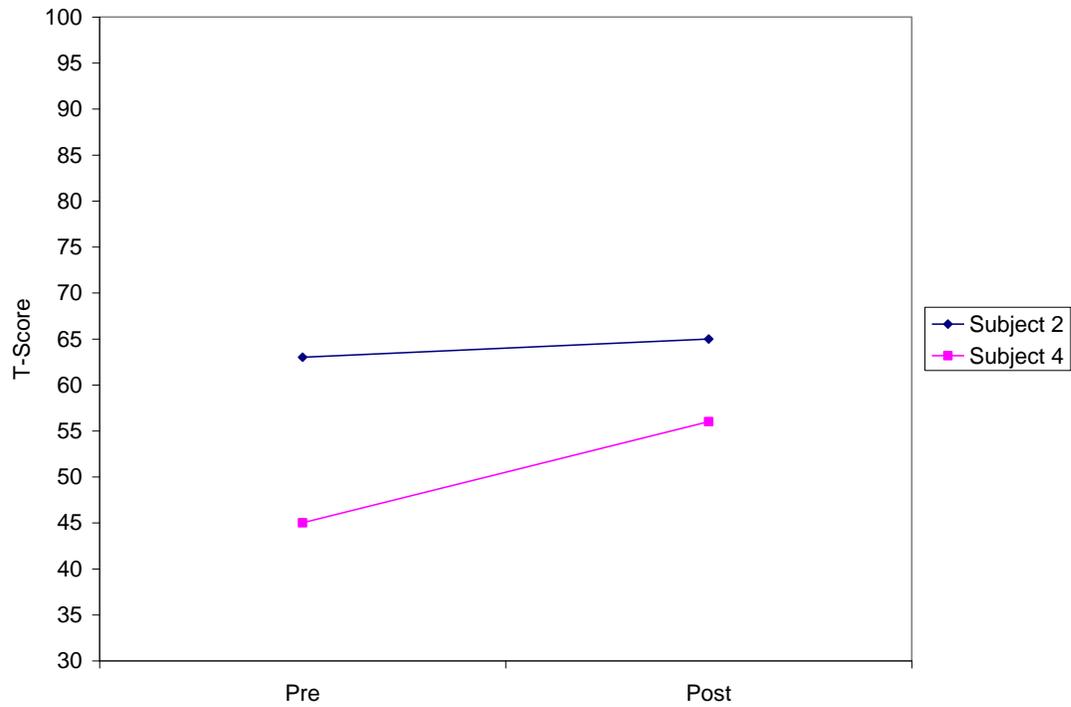


Figure 19. *RADS-2 Dysphoric Mood pre- and post-test for the Strong Teens group.*

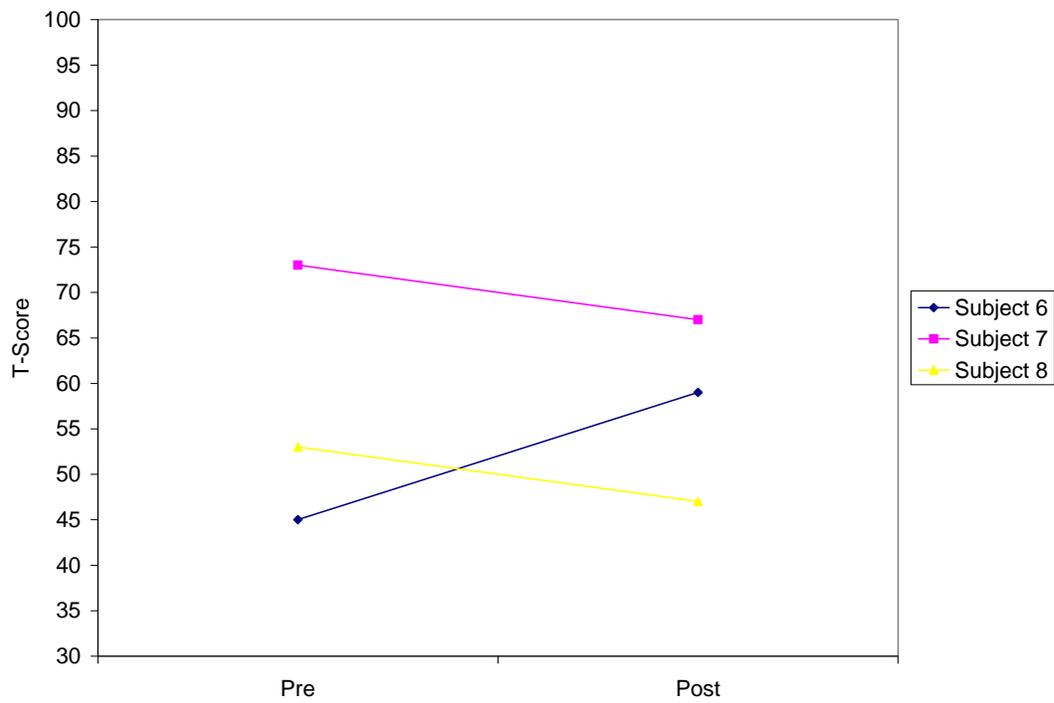


Figure 20. *RADS-2 Dysphoric Mood pre- and post-test for the Events group.*

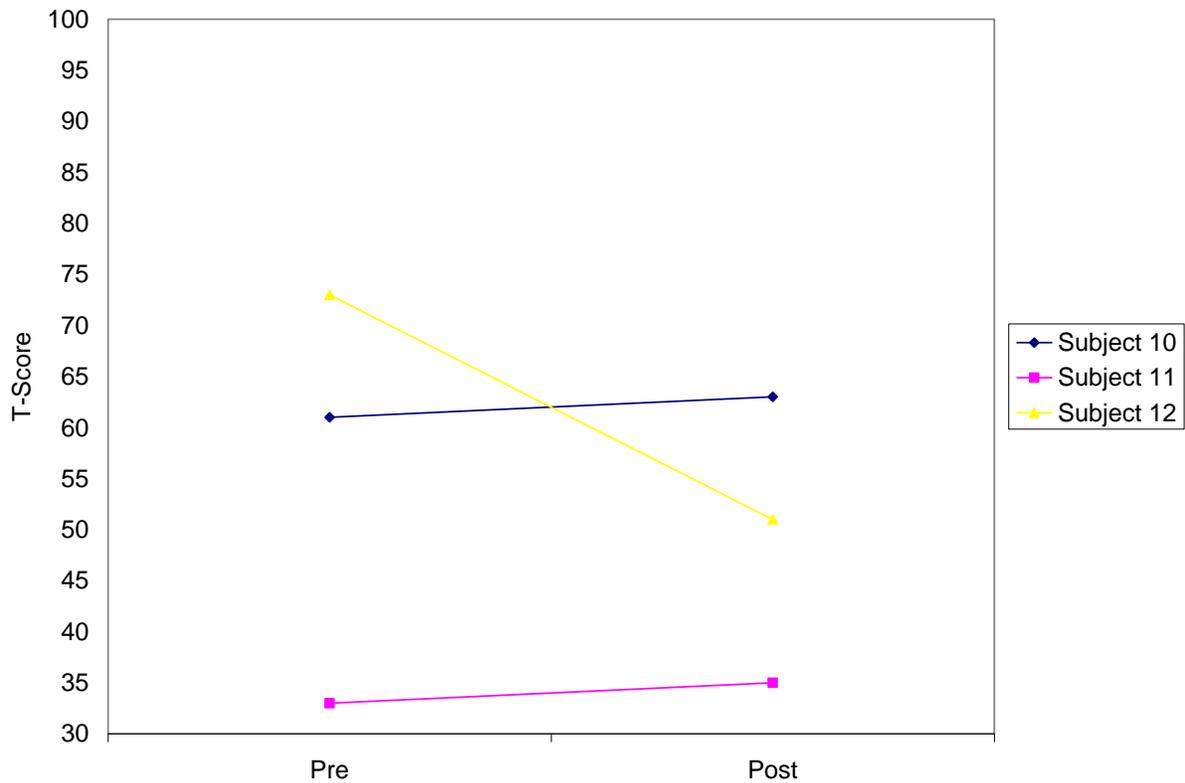


Figure 21. RADS-2 Dysphoric Mood pre- and post-test for the control group.

Table 3. Pre- and Post-RADS-2 T-scores for the Treatment (Strong Teens) Group

Subject	Pre-Test Dysphoric Mood	Post-Test Dysphoric Mood	Pre-Test Total Depression	Post-Test Total Depression
1	59	---	66	---
2	63	65	62	66
3	67	---	66	---
4	45	56	51	53
<i>M</i>	54	60.5	56.5	59.5

Note. Post-treatment data are missing for subjects 1 and 3 in the *Strong Teens* group, both of whom left school before the end of the school year and were not available to complete the RADS-2 following participation in the program.

Table 4. *Pre- and Post-RADS-2 T-scores for the Comparison (Events) Group*

Subject	Pre-Test Dysphoric Mood	Post-Test Dysphoric Mood	Pre-Test Total Depression	Post-Test Total Depression
5	41	---	41	---
6	45	59	47	55
7	73	67	76	66
8	53	47	57	50
<i>M</i>	57	57.7	60	57

Note. Post-treatment data are missing for subject 5 in the Events group, who left school before the end of the school year and was not available to complete the RADS-2 following participation in the program.

Table 5. *Pre- and Post-RADS-2 T-scores for the Control (No Treatment) Group*

Subject	Pre-Test Dysphoric Mood	Post-Test Dysphoric Mood	Pre-Test Total Depression	Post-Test Total Depression
9	65	---	63	---
10	61	63	57	61
11	33	35	32	31
12	73	51	78	53
<i>M</i>	55.7	49.7	55.7	48.3

Note. Post-treatment data are missing for subject 9 in the control group, who left school before the end of the school year and was not available to complete the RADS-2 following participation in the program.

Figures 16 through 21 show pre- and post-treatment measurements of overall level of depression and level of dysphoric mood for individual students in each of the three groups.

Tables 3 through 5 list pre-and post-treatment RADS-2 T-scores for students in each group and include mean T-scores. Reported mean T-scores for pre-test measures were calculated for only those students who had also completed the post-test administration of the RADS-2.

For the Total Depression scale of the RADS-2, comparison of mean T-scores on pre- and post-test administrations reflected an unexpected *increase* in the mean T-score (level of depression) for the treatment group (3.0 points). This would appear to reflect an overall increase in level of depression for these students. Also counter to expectations, the difference in mean T-scores for the control condition *decreased* 7.4 points from week 1 to week 7. And for the events

group, mean levels of overall depression also decreased slightly (3.0 points) from pre-test to post-test.

Similarly, comparison of the mean T-scores for the Dysphoric Mood scale indicated an increase from pre-test to post-test for the treatment condition, from 54.0 to 60.5; this suggests an apparent increase in level of depressed mood. There was a modest decrease in mean T-score for the control group (55.7 to 49.7), suggesting a decrease in the level of depressed mood for this group. Mean T-scores for the Events group increased only slightly from 57.0 to 57.7, reflecting a negligible increase in level of depressed mood for this condition.

When results for individual students are examined, pre- and post-test measures of both overall depression and depressed mood on the RADS-2 once again did not yield expected results for the *Strong Teens* group: T-scores obtained before treatment and after treatment increased for both students who completed pre- and post-test measures. Thus, in spite of slight academic gains for each individual and for the treatment group as a whole, levels of depression actually appeared to *increase* following completion of the program.

Of course, any interpretation of these results should begin with a consideration of the standard error of measurement (SEM) for the RADS-2. The SEM for the RADS-2 Depression Total scale is 3.03; that for the Dysphoric Mood scale is 3.56. When pre- and post-test Depression Total T-scores for the two students in the *Strong Teens* group that completed both measures are examined in light of the SEM associated with these scores, this apparent increase in level of overall depression disappears. This also occurs in a parallel analysis of results for the Dysphoric Mood scale. And although the SEM cannot account for the magnitude of increase in T-score for one of the *Strong Teens* students, both pre- and post-test measures were in the normal

range. Hence, while there did not appear to be any improvement (i.e., decrease) in levels of overall depression or depressed mood for the participants in the treatment group, there is likewise no support for an increase in depression for this group.

Changes in levels on the RADS-2 are more difficult to account for when results for the Events and no-treatment groups are examined. For the Events group, two of the three students who completed both the RADS-2 pre- and post-test exhibited a decrease in T-score for both scales, while one student's T-score increased on both scales. However, one of the students whose T-score decreased (subject 8) and the student whose T-score increased (subject 6) provided responses to RADS-2 items placing them in the normal range for both pre- and post-test. The other student (subject 7) whose scores decreased had Depression Total and Dysphoric Mood scores that went from the "severe clinical depression" range down to the "moderate clinical depression" range post-treatment. Both the SEM and the test-retest reliability should be considered in determining whether this decrease is statistically significant and meaningfully large. The test-retest reliability for the Depression Total scale is reported as .85; that for the Dysphoric Mood scale is .80 (Reynolds, 2002, p. 76). When these considerations are taken into account, the difference in T-score appears to reflect a decrease in level of depression for this student; however, it is not large enough to support a significant decrease in depressive symptomatology.

Subject 12 in the no-treatment group produced responses resulting in a T-score placing the student in the "severe clinically significant" range in the baseline phase, decreasing both significantly and meaningfully into the normal range for the treatment phase. For this student, this was the case for both the Depression Overall and Dysphoric Mood scales. Of the other two

students who completed both pre- and post-test measures, one student's (subject 11) responses consistently yielded results in the normal range, while the third student's (subject 10) decrease in T-scores for both scales were not clinically significant, particularly when the SEM was taken into account, ranging from the normal range to the "mild clinical depression" range.

Relevant to a later consideration of these results, in spite of the initial referral of subjects by the school counselor and special education social worker – students identified as depressed - for pre-treatment administration of the RADS-2, six out of twelve of the students in the study (50%) provided ratings placing them in the normal range with respect to overall depression; moreover, eight out of twelve (66.7%) fell in the "mild clinical depression range" or below. Even in the area of depressed or dysphoric mood, considered the sine qua non of clinical depression – and the reason for the inclusion of the RAD-2 Dysphoric Mood scale in this study – six out of twelve of the participants (50%) provided responses consistent with normal levels of affect. More specifically, when responses to individual RADS-2 items were examined, nine out of twelve (75%) of the subjects responded "sometimes" or "most of the time" to the item, "I feel happy." Seven students (53.3%) responded "almost never" or "hardly ever" to "I feel like crying."

In addition to the RADS-2, students in the treatment group were asked to complete a 35-item, multiple-choice test assessing an understanding of the concepts taught in the course of the *Strong Teens* program; identical tests were administered during the first session and then again during the last one. Both of the two subjects in the treatment group that completed the pre- and post- *Strong Teens* Content Test showed improvement. One subject obtained a pre-program

score of 54.3% and a post-program score of 66.7%. The other subject's pre-program score was 51.4%, increasing to 68.6% following the program.

CHAPTER V

DISCUSSION

Interpretation of Findings

A number of comprehensive group intervention programs appropriate for treating school-age children with depression began to emerge in the early 1990s as researchers found that programs that incorporated multiple cognitive and behavioral techniques led to more favorable outcomes compared to programs that emphasized the use of specific techniques individually (Harrington, 1993; Kaslow, Morris, & Rehm, 1998; Lewinsohn, Clarke, Hops, & Seeley, 1996; Reynolds, 1992; Stark, 1990). Kenneth Merrell, the primary developer of the *Strong Teens* program used in the current study, pointed to a growing impetus for program development resulting from these findings, to the “increased emphasis and attention...being placed on the use of cognitive-behavioral treatment programs as the potentially most effective and systematic means of combating depression in children and adolescents” (Merrell, 2001, p. 64). In spite of the strong interest in developing these programs, few have been developed and tested in the field (Merrell, 2001). Those that have appeared on the market in treatment manual form, for the most part, consist exclusively of cognitive-behavioral components or include several of these components. Having reviewed four of the most widely available and integrated of these programs, Merrell identified the essential intervention components common among them. Most of these components were incorporated into the *Strong Teens* program.

The purpose of this study was to examine the impact of the *Strong Teens* program on academic performance, as reflected by ongoing cumulative class percentages from two classes for each student. Four high school adolescents, previously identified as displaying marked

characteristics of depression, participated in the program. In addition, academic progress was monitored for four students in a comparison group that met to discuss current events and for four students who did not participate in any group. Pre- and post-intervention measures of overall depression and depressed mood were collected for students in all three conditions.

Results of the current study did not support the effectiveness of the *Strong Teens* program for producing meaningful improvements in academic performance for adolescents with depression. Although each of the four students who completed the *Strong Teens* program showed a slight increase in mean cumulative percentage (level) from baseline to treatment, these increases in academic performance were unremarkable, with students in the group staying at the same grade level or increasing only a half a grade (e.g., from a C to a C+). Moreover, in the Events group, two students showed improvement that exceeded those of the students in the *Strong Teens* group, and one of these subjects (subject 7) showed a meaningful increase in performance, essentially going from a failing grade to a C.

Generating an explanation for this outcome for subject 7 - for the significant academic gains displayed by a student participating in a group without any intentional therapeutic benefits - enters into the realm of conjecture. At the same time, it is certainly reasonable to attribute, at least in part, the student's failing grades during the baseline period to her experience of the impending death of a loved one. Given that the funeral took place at the very beginning of the group and her subsequent active participation, it is plausible that the interactions within this group inadvertently provided some level of support. Other unknown factors, such as reduced stressors at home or improvement in peer interactions, may also have played a role in her academic gains.

More consistent with expectations, of the other two subjects in the Events group, one showed no change, and one displayed a decrease in performance. However, as noted previously, the Events group as a whole had an average change in cumulative percentage that exceeded that of the *Strong Teens* group.

Further doubt about the *Strong Teens* program's effectiveness in improving the academic functioning of depressed students is cast by the performance of two of the subjects in the control group, one of whom (subject 11) improved nearly a grade level; the other (subject 9) displayed a small increase comparable to that of the students in the treatment group. (The other subjects in the control group displayed decreases in performance.)

The results of this study also call into question whether a group intervention for building "emotional resiliency" – and designed to meet the needs of a broad base of adolescents with a range of behavioral and psychological difficulties – is sufficient for students suffering specifically from depression. When the program's developer was initially contacted, he provided an unpublished version (Merrell, 2004) of the program that included the cognitive-behavioral components he had previously identified for treating depression in children and adolescents (Merrell, 2001). The first lesson of this unpublished version included a portion devoted to defining "critical terms" such as *self-esteem*, *depression*, and *anxiety*. However, in the published edition (Merrell, 2007), these terms were conspicuously missing from the first lesson, as well as from the overall program. It may be valuable to examine whether a variant of the program specifically targeting students with depression would have more favorable outcomes.

Given the one-size-fits-all nature of the *Strong Teens* program, it may be less effective than other CB programs currently available. Although less practical in terms of number and

length of sessions, respectively, the CWD-A and the *Taking Action* programs are designed specifically for adolescents with depression, and research has supported their effectiveness in reducing symptoms. In examining any of these structured programs, however, practitioners should take into account the nature and severity of the depression of an individual student. Consideration of whether the student suffers from a mild, reactive depression or a more chronic syndromal form resistant to conventional treatment is vital in understanding his or her individual needs and identifying the appropriate interventions within the schools. Moreover, not all depressed students exhibit poor school performance. Some students, such as subject 3, maintain a high level of academic achievement in spite of their depression. It is incumbent on the schools to decide how to best support these students, since they are not likely to be eligible for special education services.

Results indicated that there was no decrease in level of overall depression or depressed mood for the two students in the Strong Teens group who completed pre- and post-measures on the RADS-2. Furthermore, two students – one in the Events group, the other in the no-treatment condition – showed a meaningful decrease in depressive symptomatology in the course of the experimental phase of the study. An absence of data during the course of baseline and treatment phases precludes an explanation. At the same time, changes in depression are certainly related to life events. It could be that any number of intervening factors – a reduction in stressors during this period, improvements in the home or social environment within the school, the effect of other interventions delivered by the school system, or simply the anticipation of the end of the school year may account for reductions in depression for these students.

Results of this study strongly suggest that the RADS-2 was not sufficient for its intended purpose, given that the majority of students did not display clinically significant elevations in depression on the initial administration of the instrument. Furthermore, with half of these students providing ratings of their feelings, thoughts, and behaviors that placed them in the normal range, the ability to make meaningful comparisons with post-test administrations was seriously compromised.

In part, the relatively low rate of initially reported depression may reside in the inadequacy of using a stand-alone measure for assessing levels of depression, particularly when assessing individual students using a single-subject design. With its reported validity and high reliability – in comparison to other similar measures – the RADS-2 may be more appropriate for use in a between-group experimental design with a large sample of subjects. Indeed, the author cautions against the use of a single measure for diagnostic purposes, warning that clinical descriptions for the RADS-2 “should not be considered either a formal diagnosis of depressive disorder or labels of specific groups” (p. 53).

Although unlikely, given the large number of students whose responses on the RADS-2 placed them in the normal range of functioning, it is possible that some students in the study were not always reliable reporters of their own emotions, thoughts, and behaviors, even when responding to a standardized inventory such as the RADS-2. Given the difficult developmental tasks that adolescents face – cognitive, affective, and social – it may be the case that some students lack the introspection and insight necessary to recognize the presence of their own negative mood states, the ability to gauge their reactions to stressful life circumstances, and the capacity to identify depressive ideation impacting their lives at this stage. Moreover, it is

possible that denial, a desire to give a positive presentation of self, or a need to minimize threatening painful emotions may impact response style. At present, however, there is no research indicating that adolescents as a group are unreliable reporters of their own emotions and thoughts when completing standardized inventories.

A number of more comprehensive, multiple-component inventories assessing a broad spectrum of emotional and behavioral problems in children, among them the *Minnesota Multiphasic Personality Inventory – Adolescent* (Butcher et al., 2006), the *Behavior Assessment System for Children – Second Edition* (Reynolds & Kamphaus, 2004), and the *Achenbach System of Empirically Based Assessment* (Achenbach, 1991), include validity scales to detect response styles that may result in an inaccurate profile of the respondent’s thoughts and feelings. For various reasons, respondents may complete items in such a way to deny or minimize their depression (“fake good”) or to exaggerate it (“fake bad”). Lapses in attention, distractibility, and inconsistency can also result in an invalid response style. Such scales are not included in the RADS-2, as they are not with many other narrow-band instruments, due to their relative brevity. Therefore, in the absence of other relevant contextual information, it is not possible to identify whether or not a student provided an invalid response style on the RADS-2.

A more overarching issue raised by this study, however, is what utility, if any, the RADS-2 or any other inventory, has for making important decisions about the ongoing effectiveness of a selected treatment for a given student. Certainly a comprehensive evaluation including information from multiple sources would be a more valid means, yet the time involved for completing such an evaluation makes it clearly prohibitive. The question remains as to what is the best, most practical means for evaluating whether a school-based intervention is effective.

Both of the students in the *Strong Teens* group who completed the Content Test at the beginning and end of the program showed improvement in their knowledge of concepts introduced in the curriculum; however, scores for both students strongly suggested a lack of mastery of basic concepts presented in the course. This result certainly calls into question the program's effectiveness, particularly if the core assumption behind the program's success is based on the student's ability to construct a complete and accurate cognitive framework as a necessary condition for altering behavior and emotion. At the very least, it would seem to be a reasonable assertion that mastery of basic concepts would be one vital prerequisite for beneficial outcomes for the student, both with respect to level of depression and academic achievement.

To summarize, the effectiveness of the *Strong Teens* program in improving the academic performance of teenagers with depression was not supported. The results of the study also failed to support a reduction in overall depression or depressed mood in subjects participating in the intervention. Nor was mastery of the program's content demonstrated for these students.

Limitations

The limitations of this study can be identified at a number of different levels: in the type of research design used, in the few data points obtained for baseline and treatment phases, in the limited standards used for the initial identification of students appropriate to the study, in departures from the standardized administration of the *Strong Teens* program, in the quality and quantity of data obtained, in unforeseen circumstances occurring during the course of the study, in the lack of ethnic and cultural diversity among subjects, and finally, in attitudes toward research in the local school district in which the research was implemented.

Given the lack of subjects available for a between-groups design, no conclusions can be made about treatment efficacy. Although the study did group subjects into treatment, comparison, and no-treatment groups, a single-subject design was used; thus, results can be derived only from visual inspection for individual subjects within these grouping and through a general comparison of average changes reported for each group. Moreover, the simple A-B design used in the study does not allow an assertion that the small increases in cumulative percentages among subjects in the treatment group were due to the intervention. In the absence of the type of baseline logic that can be applied to more complex single-subject designs, internal validity problems arise from the single-baseline design.

The small number of data points available during baseline and treatment greatly limited the confidence with which conclusions can be made, although baseline levels were generally stable, especially in the treatment group. Analysis of trend is particularly difficult with only three baseline points and four treatment points; it is difficult to see if there is a positive, neutral, or negative trend in the baseline compared to the trend in the treatment phase. Calculations of the PND between phases are also less meaningful when fewer than five data points are available for each phase. It is also difficult to justify the use of other potentially useful metrics such as no-assumption effect sizes (Busk & Serlin, 1992) and R^2 (Cohen & Cohen, 1983) when the number of data points is so small.

Also problematic was the process used to select students for the study. Out of the final twelve students who were selected, only three were receiving special education services under the classification “Emotional Impairment,” based on the presence of “a general pervasive mood of unhappiness or depression”; only these three students had undergone a comprehensive

evaluation. The other nine students were referred by the school counselor. Although the counselor was given general guidelines based on DSM-IV-TR criteria, much of the selection process relied on clinical judgment. Given this latitude, students experiencing distress resulting from a crisis at home or at school could have been selected. This overreliance on clinical judgment may have contributed to the marked inconsistency between the impressions of school personnel and the self-reports provided by students on their initial completion of the RADS-2.

Two other issues that may have impacted the outcome of the study were related to treatment fidelity. In the first instance, one of the students in the treatment group had the first two sessions administered to her individually due to out-of-school extracurricular activities scheduled when these sessions were given to the other three students. This entailed presenting material and modifying role-playing exercises in the absence of other group members, a circumstance that may have influenced the response to treatment for this particular student. The other departure from protocol was teaching two lessons per week for a total of six weeks, due to the necessity of completing the course within the parameters and schedule of a single semester. The authors of the *Strong Teens* program recommend teaching one lesson per week for 12 weeks but also add “it is possible to effectively teach the curriculum at a more accelerated tempo such as two lessons per week for 6 weeks” (p. 5). However, one recent meta-analysis of group cognitive behavioral interventions found that larger treatment effects resulted for shorter total intervention periods, with diminishing effects occurring at approximately eight weeks (Maag, Swearer, & Toland, 2009).

Results of this study were also limited by the quality of achievement data – by the fidelity, consistency, and accuracy of the cumulative percentages that were provided for each of

the twelve students throughout the course of the experimental phases. The sole source of data on class percentages was the Student Achievement Form (SAF) completed by each teacher on a weekly basis. Teachers were often inconsistent in completing forms, resulting in missing or inaccurate data. Often, teachers did not have these percentages calculated up to a given week and provided only rough estimates; at times, teachers did not turn in forms, especially toward the end of the semester when their workloads increased. When possible, grade records were obtained and percentages were calculated directly by the examiner. Another variable that may have limited the reliability of the data was the different grading practices of teachers: some provided more weekly assignments and more frequent tests than others; some teachers gave extra-credit assignments at the end of the semester, while others did not. This variability would be expected to impact the reliability of the SAF as a reflection of academic performance over time.

Other circumstantial irregularities occurred. During the end of the treatment phase, three students left school before the end of the year. During both baseline and treatment, there were absences and suspensions for some students. In a couple of instances, students participated in special activities and did not attend the group for that day. Several teacher lay-offs were announced during the course of the study, which affected the quality and availability of data toward the end of the treatment phase.

Yet another limitation of the study was a lack of ethnic and cultural diversity among participants. Eleven of the students were white/not of Hispanic origin and only one student was Hispanic. All students attended a high school in a primarily rural area with a high level of unemployment (well above the national average).

Finally, negative attitudes within school districts toward psychological research presented a special limitation. The high school in which the study was conducted was the fourth school pursued as a potential site. Administrators, school social workers, school psychologists, teachers, and parents were often reluctant to have students participate in such research, even when the research held potential benefits for the schools. Even in the school in which the study was finally conducted, upper level administrators and some teachers were reluctant to have the research conducted in the school. This reluctance, of course, is rooted at least in part over concerns with liability, with the loss of classroom time for students and with the expenditure of time and resources on the part of teachers, who are already overtaxed. On the other hand, it also reflects the low priority to which such research is assigned and to the value this research has in leading to the development of effective programs for promoting the emotional wellbeing and resilience of struggling students. Inevitably, these attitudes were translated into the quality of data that was given.

Future Research

Given the fairly recent emergence of comprehensive cognitive-behavioral group interventions for depression available to teens, there is a strong need to continue building a research base examining the efficacy of such programs. Feasibility studies may be helpful in examining research tools that accurately measure pre- and post-treatment levels of depression. Exploration of appropriate methods for collecting data should also include considerations of how sensitive instruments are to small changes in affective and academic functioning. Such pilot studies would be valuable precursors to between-group research designs examining the effectiveness of a given CB program in terms of both favorable psychological and academic

outcomes. Studies examining individual features of a given program – number and frequency of sessions, methods leading to content mastery, strategies to promote engagement and practice – would be useful in identifying optimal conditions for treatment efficacy.

At present, there are only four extant meta-analytic reviews of comprehensive CB programs (Maag et al, 2009; Weisz, McCarty, & Valeri, 2006; Lewinsohn & Clarke, 1999; Reinecke, Ryan, & DuBois, 1998). The earliest of the four analyses used different programs and a different set of variables corresponding to individual program components, and overall effect sizes for these studies varied widely, from 0.34 to 0.99 (Maag et al, 2009). With respect to the most recent meta-analysis – conducted by Maag and his colleagues – in spite of the variability in ES values, the researchers concluded that, “there is enough definitive research to demonstrate that CBIs are an evidence-based approach for treating depressive disorders in children and adolescents... in clinical settings” (p. 254). The authors cautioned, however, that, “The question remains as to whether CBIs are a viable approach for school personnel.” Certainly further research is needed to examine the efficacy of specific programs in the schools. Future research should also focus on determining the effectiveness of individual components for a particular program.

Because of its importance to the schools and its relevance to the dictates of IDEA-Part B, further research into the effectiveness of *Strong Teens* and other cognitive-behavioral group interventions for enhancing academic performance is strongly indicated. In order to justify the expense of time and resources in using these programs, favorable outcomes need to be demonstrated and substantiated.

Finally, as suggested by the results of this study and past research, it is important to identify valid, comprehensive means of assessing levels of depression in school, especially ones that incorporate measures that are more sensitive to changes occurring over smaller time intervals. This need is especially relevant to the type of single-subject design used in this study, a design that is most commonly used for interventions with individual students in the schools, following from the increasing demand for data-driven decision making in intervening with children with emotional and academic difficulties.

Implications for School Psychology Practice

School psychologists have an important role in meeting the special needs of adolescents with depression through the professional activities of prevention, identification, assessment, and intervention. Through pre-referral processes such as student intervention teams and consultation with parents and teachers, they can identify students who are at risk. When a referral for special education evaluation for a possible emotional impairment is requested, school psychologists can conduct comprehensive assessments that identify specific problems areas and recommend appropriate interventions in the school. In addition, school psychologists can help parents identify resources both within the school and in the community. School psychologists can work with physicians and outside therapists to provide data about a student's functioning in school in the course of treatment. They can also provide direct counseling services in both an individual and group setting.

The current study focused on one comprehensive group intervention for depressed adolescents. Although this pilot study did not provide support for the effectiveness of the program for reducing depression and improving academic functioning, there is emerging

research on other groups that show potential for positively impacting depressed students. In light of this, school psychologists should advocate for additional research examining these programs, especially focusing on their utility for improving school performance. Group cognitive-behavioral interventions specifically for depression may be valuable as supplements for in-school counseling services, individual therapy in community-based clinics, or for treatment with psychiatric medication. School psychologists would also be expected to work with teachers, student intervention teams, and other school personnel in designing appropriate systems for monitoring outcomes of such interventions and programs.

Finally, school psychologists now have the opportunity to become actively involved in task forces promoting evidence-based interventions, as described by Kratochwill & Shernoff (2004). Through these task forces, practitioners in the schools can collaborate with researchers in identifying interventions that have an established efficacy and also conform to the practical realities of the average public school. Partnering with local universities allows school psychologists in outlying districts to benefit from current research and practice and to reciprocate by providing researchers and graduate students access to the real-world setting of the schools. Such collaboration also holds the promise of promoting a greater acceptance of research in the schools.

APPENDICES

APPENDIX A

STUDENT ACHIEVEMENT FORM

STUDENT ACHIEVEMENT FORM (SAF)

CONFIDENTIAL

Student Name: _____

Academic Performance for the Week interval from _____ **to** _____

Teacher Providing Input: _____

Subject: _____

Cumulative Percentage for the Class: _____



APPENDIX B

LESSON-BY-LESSON DESCRIPTION OF THE *STRONG TEENS* PROGRAM

Lesson 1: Emotional Strength Training

Introduction (5 min.):

The purpose and objectives of the program are presented, including an explanation of the personal relevance and importance of the skills to be taught.

Pretest Assessments (15 min.):

Assesses background knowledge of concepts related to the program. A post-test can be administered at the end of Lesson 12 to assess learning outcomes. A symptom checklist is also included.

Introduction of Topics to be Covered During the Program (2-5 min.):

Understanding emotions, dealing with anger, understanding others' emotions, thinking clearly, the power of positive thinking, solving people problems, learning to relax, and setting goals and staying active.

Awareness or Disclaimer Statement: Students with Serious Problems (2-5 min.)

Students are told that, although the *Strong Teens* program will be helping them learn valuable life skills, the program may not be enough by itself to help those with high levels of emotional problems. This is a time to identify students who may require additional intervention.

Defining Behavioral Expectations (2-5 min.):

Respect for others, confidentiality, and adequate lesson preparation are discussed.

Closure (2-5 min.):

Main points of the introductory lesson are reviewed.

Homework Handout (2-5 min.)

Introductory assignment involving feeling identification exercise is distributed.

Lesson 2: Understanding Your Emotions Part 1

Review (2-5 min.):

Previous assignments and main ideas from the previous lesson are reviewed and discussed. Students are asked to identify 3-5 adequate ideas, and feedback is provided.

Introduction (2 min.):

The purpose of the lesson is presented. Students are told that different types of feelings will be discussed and that these feelings will be identified as comfortable or uncomfortable.

Naming and Defining Skill (5-10 min.):

An optional overhead is available to define terms related to affective experience (“emotion/feeling,” “comfortable,” and “uncomfortable”). Students are asked to provide examples of feelings, explain functions of these feelings, and identify how they can tell if it is comfortable or uncomfortable.

Feeling Identification (15 min.):

A list of emotions is generated, these emotions are identified as comfortable or uncomfortable, and associated sensations and physical responses are identified. Students are given a handout to complete, identifying emotions as comfortable or uncomfortable. A discussion group(s) is formed to discuss the completed worksheets. A follow-up discussion is conducted.

How do you feel? (10 min.):

Students are asked to talk about feelings they have experienced in different situations, a worksheet (“How do you feel?”) is completed, and results are examined in the course of a follow-up discussion.

Closure (2-5 min.):

Skills are reviewed, key points summarized, and the relationship of lesson content to objectives is highlighted.

Testing and Homework Assignment (2-5 min.):

Students receive “About My Feelings” worksheet along with instructions.

Lesson 3: Understanding Your Emotions Part 2

Review (5 min.)

Identify Actions that Follow Feeling (5-8 min.):

Students are introduced to the relationship between emotional responses and the situations eliciting them. Common actions associated with an emotion are identified. Appropriate and inappropriate responses to emotions are discussed.

Positive and Negative Examples of Expression of Feeling (10 min.):

Leader asks for responses or randomly selects students to discuss examples. “Ways of Feeling” overhead, leader questions, and class discussion are used to generate examples and non-examples of appropriate reactions. A second overhead asks students to generate appropriate responses to a chosen emotion.

Practice Situations and Application (15-20 min.):

Situation cards are distributed to groups and group members are to identify the emotion stimulated by the situation, identify that emotion as comfortable or uncomfortable, and provide 3 positive examples of expressing that emotion. A “Practice Application” overhead is provided for students to view during this activity. The class then comes together to discuss the situations and examples produced during the activity.

Closure (2-5 min.):

Key points and objectives are reviewed.

Homework Handout (2-5):

The worksheet “Reacting to Emotional Situations” is distributed as a homework assignment.

Lesson 4: Dealing with Anger

Review (2-3 min.)

Introduction (2-3 min.)

Relates to students that this lesson will cover understanding anger and how to manage aggression.

Naming and Defining Anger and Aggression (10-12 min.):

The concepts of emotion, anger, aggression, and aggression management are discussed. A handout is also provided. In the course of five activities, students are encouraged to provide personal examples of when they have become angry, what made them angry, and what strategies they used to handle their anger. Students are also asked to give examples of situations in which they responded aggressively when angry.

Introduce Anger Model and Definitions (2-5 min.):

An overhead is used to introduce component concepts of the Anger Model: trigger, interpretation, emotional reaction (anger), decision, behavior, and consequence.

Integrate and Illustrate Anger Model (8 min.):

Examples are applied to the steps in the Anger Model sequence. An overhead of the steps and accompanying examples is used. Features of each step in the sequence are discussed. For example, students are taught that their interpretation of a situation influences their emotional response, which, in turn, affects their decision-making.

Present Anger Control Skills (5 min.):

An overhead is the basis for discussion of key anger control strategies: counting backwards, if-then statements, self-talk, and self-evaluation.

Application of Anger Control Skills (8-10 min.):

The appropriate use of anger control skills is given, including the use of positive and negative examples.

Practice and Application (8-10 min.):

Students role-play two scenarios and apply the Anger Model to them. They are then asked to role-play a positive example of using anger control skills. Students provide answers to the following questions:

- How did this turn out?
- Why did it turn out this way?
- What skills did you use?

Closure (2-3 min.):

The lesson's main points are reviewed.

Homework (2-3 min.):

The Anger Management Worksheet is given out.

Lesson 5: Understanding Other People's Emotions

Review (2-3 min)

Introduction (2 min.):

Lesson objectives are communicated and the term "empathy" is introduced. Empathy is described as an important practice that helps to understand others' feelings.

Name and Define Skills (5-8 min.):

An overview and definition of the terms "emotion," "empathy," "perspective," and "cues" is given. (An overhead is available.)

Modeling Emotions (10-12 min.):

Students respond to an overhead listing emotions and are asked to demonstrate how they would express these emotions to their classmates. Students are given a vivid demonstration of the relationship between emotion and visual cues.

Integrate Key Concepts (2 min.):

The group leader elicits student's understanding of how they can use cues to understand others' emotions and how this information can be used to understand them better.

Practice and Application (15 min.):

Handouts of different scenarios are distributed. Students act out selected or assigned scenarios, providing physical cues to others and describing their perspectives in relation to a given scenario. The class discusses how they would feel if they were that person.

Closure (2-3 min.):

Review steps and objectives related to empathy.

Homework (2-5):

An Empathy worksheet is assigned as homework. In this assignment, students provide two examples of times they could tell how someone was feeling and what cues they used.

Lesson 6: Clear Thinking Part 1

Review (5 min.)

Introduction (2-5 min.):

The idea of the connection between negative thoughts and emotions is briefly introduced.

Identify Intensity of Emotions, Negative Thoughts, and Common Thinking Errors (25 min.):

Activity 1

In this activity, students are asked to share a personal experience during which they experienced emotions such as anger, sadness, or fear. They are then asked to indicate the level of intensity or “temperature” of that emotion on a thermometer appearing on an overhead.

Activity 2

Students are asked to identify thoughts that accompanied an emotion they had experienced.

Activity 3

An overhead and accompanying handout lists five types of thinking errors (“binocular vision,” “black and white thinking,” “dark glasses,” “fortune telling,” and “making it personal”). Students are then given five different scenarios and asked to identify which type of thinking error is present for each one. The leader allows students to ask questions, calls on students to identify the thinking error corresponding to the scenario, and provides feedback.

Closure (2-5 min.):

The lesson’s main points are reviewed.

Explanation of Homework Assignment (10 min.):

Students are given a homework handout asking them to list 4 times they had a negative thought and to identify the thinking error involved. The leader provides a personal example and demonstrates how to fill in the chart. Students work through at least one example in class.

Lesson 7: Clear Thinking Part 2

Review: Name and Define Skill (15 min.):

The six common thinking errors introduced during the previous week are reviewed.

Introduction (2-5 min.):

Students are told that this lesson will focus on changing thinking errors to positive or more realistic thoughts.

Looking for Evidence and Learning How to Reframe Negative Thoughts (20 min.):

The strategy of examining the reasonableness of a negative thought is introduced through discussion. Analogies and examples are used to describe the following process:

- Identifying negative thought patterns
- Making a decision regarding the validity of the thought (Is it based on a thinking error or good evidence?)
- If it is based on a thinking error, how to get rid of it by replacing it, reframing it, or refuting it

Scripted examples provide explanations of using evidence to determine the validity of a thought and the use of reframing. Overheads give examples for discussion. The group leader initiates discussion in which students use their homework assignment to apply re-labeling and reframing to real-life situations. Volunteers from the class role-play examples from the homework assignment. Using a handout, examples from the previous lesson's homework assignment are discussed as a group.

Closure (2-5 min.):

The group leader briefly summarizes key points from the previous two lessons.

Homework (2-5 min.):

Students are given a chart asking them to record at least two events where a negative thought was involved, determine whether there was a thinking error, identify the type of thinking error, decide whether there is a more realistic way of thinking about the situation, and deciding whether reframing or re-labeling is the best one to use.

Lesson 8: The Power of Positive Thinking

Review (2-3 min.):

The group leader asks class members to state an important idea from the last class, and feedback is provided.

Introduction (2 min.):

Introduces objective of the lesson, learning how to change negative thoughts and beliefs.

Name and Define Skill (10-12 min.):

Relevant vocabulary is introduced and discussed: self-control, personal control, optimism, and pessimism. General questions and statements are introduced to stimulate thought and discussion

(i.e., “What are reasons why you might have negative thoughts about yourself, your abilities, or your potential?”).

Introduce the ABCDE Model of Learned Optimism (5 min):

The ABCDE Model is presented as a way to achieve positive thinking. The key concepts of Advorsity, Belief, Consequence, Disputation, and Energization are introduced through questions inviting reflection and brief thought exercises. An overhead supplements the presentation.

Integrate and Illustrate ABCDE Model (15-20 min.):

Create scenarios that might result in negative thoughts, and walk through the scenario using the ABCDE process. Learned Optimism Training is initiated by applying the model to each component of an example situation. Examples and non-examples of positive thinking are presented and discussed.

Closure (10-15 min.):

An overhead is used to conduct an informal assessment of students’ knowledge of the subject. Questions include:

- What is optimism about?
- What is pessimism about?
- What is thinking positive?
- What is one way to start thinking positive?
- How can we feel better about ourselves?
- What are some ways you can make positive thinking work?
- Is it ever okay to have a negative thought?
- What do you think happens when you have too many negative thoughts?

Homework Assignment (2-5 min.):

Students are asked to keep a journal for a week, monitoring situations that made them feel bad. Students are also asked to write a brief paragraph about one situation that helped them to learn from their mistake without “beating themselves up about it.”

Lesson 9: Solving People Problems

Review (2-5 min.):

Students identify 3-5 adequate ideas from the previous week’s lesson, and the group leader provided feedback.

Introduction (2-5 min.):

The lesson’s objectives are introduced, including the key concepts of conflict resolution or social problem solving.

Name and Define Skill (5 min.):

An overhead and handout are used to define important terms for the lesson: conflict/ problem, resolution, resolve, problem solving/ conflict resolution.

Understanding Conflict (2-5 min.):

The main ideas of the lesson are explained using age-appropriate language. Issues related to conflict and alternatives to conflict are discussed.

Problem-Solving Model for Conflict Resolution (10-12 min.):

The following steps are introduced:

- Identify the problem
- Brainstorm solutions
- Choose a solution
- Make an agreement

Each step is discussed in turn. The group leader provides examples of entry statements in response to difficult-to-resolve conflicts.

Integrate Key Concepts (2-5 min.):

Example scenarios, modeling scenarios, or student role-play exercises are used to apply concepts from the lesson.

Modeling (2-5 min.):

Role-play exercises are used in which the leader acts out a relevant scenario with another student. Questions are asked about each scenario.

Examples and Non-Examples of Problem Solving (5 min.):

Real-life situations are discussed and concepts of the problem-solving model are applied to it. Students are then given conflict situations and their outcomes are asked to determine whether they are or are not an example of effective problem solving.

Closure (5 min.):

Objectives and steps of the problem-solving model are reviewed.

Homework (2-4 min.):

The “Resolving Conflicts” worksheet is assigned for the next week.

Lesson 10: Letting Go of Stress

Review (2-5 min.):

Previous assignments and main ideas from the last lesson are discussed. Students are asked to provide 3-5 adequate ideas.

Introduction (2 min.):

Lesson objective are stated and the concept of stress is introduced.

Name and Define Skills (5 min.):

The terms “stress” and “relax” are defined along with the corresponding physical and emotion experience associated with them. Questions are used to stimulate examples of situations in which students have felt stress. Signs of stress are presented.

Identifying Feelings of Stress (10 min.):

Relevant school, social, and community examples of stressful situations are presented and students are asked to model reactions or tell how they would feel in those situations.

Dealing with Stress (5 min.):

Additional scenarios are generated and used as the basis for exploring negative and positive ways to deal with stress.

Discussion (10 min.):

Encourage discussion of how students have coped with stress in their own lives. In addition to ideas given by students, introduce the following coping skills:

- Talking about the problem with friends
- Physical activity (exercise, skateboarding, dancing, etc.)
- Focus in on something that you can change to help you feel a little better
- Face the source of your fears without worrying about it

Optional Activity (10 min.):

The group leader teaches steps of a relaxation exercise involving controlled breathing. A handout also lists steps for the student. This activity may not be appropriate for all students.

Closure (2 min.):

Skills and key points of the lesson are reviewed.

Homework (2-3 min.):

A “Letting Go of Stress” worksheet is assigned.

Lesson 11: Behavior Change: Setting Goals and Staying Active

Review (2-5 min.):

The group leader discusses the homework assignment and reviews main ideas from the previous lesson.

Introduction (5 min.):

The concept of goal attainment is introduced, along with objectives for the lesson.

Name and Define Skills (5 min.):

And overhead and handout are used to discuss the concepts of goals, goal setting, and goal attainment.

Steps to Goal Attainment (20 min.):

Main ideas associated with concepts are presented. Six steps for attaining goals are presented on an overhead and students refer to accompanying handouts. The following steps are discussed in age-appropriate language:

- Define your values.
- Create goals that reflect your values.
- Brainstorm ways to reach your goal.
- Evaluate your goal.
- Implement your plan.
- Check your progress.

Students are asked to generate their own personal goals, in partners or in groups. Students share their goals with the class on a voluntary basis.

Closure (2-5 min.):

Definitions, skills, key points are summarized.

Homework (2-5 min.):

The worksheet “Personal Goal Organizer” is assigned.

Lesson 12: Finishing Up!

Introduction (2-5 min.):

Key concepts from the previous lessons of the program are summarized and integrated. Students are told that this will be the final session of the program.

Review of Strong Teens (15 min.):

Students are asked to remember some of the things they’ve learned in the program. An overhead provides headings for each lesson, and students are asked to name some of the important issues from each. Prompt recall by using some of the key terms covered in each lesson.

Students with Serious Problems:

Students are told that many of the skills learned in the program will be helpful but that sometimes students may experience difficult life problems that may require them to seek help. They are given information about people that are available to help them.

Testing (15 min.):

The symptoms checklist and knowledge test may be administered at this time.

Closure (5-10 min.):

The group leader briefly reviews key points from the lesson. Confidentiality is emphasized, and group members are congratulated for finishing the course.

APPENDIX C

PARENT CONSENT FORM

CENTRAL MICHIGAN UNIVERSITY

Title of Project: Academic Achievement Outcomes for Adolescents with Depression Undergoing a Comprehensive Group Intervention for Emotional Resiliency

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Your adolescent is invited to participate in this research study, given your consent. The following information is provided to help you make an informed decision whether or not you want your child to participate. Your adolescent's participation or non-participation will not affect his/ her or your relationship with me or with the school in any way. If you have any questions, please do not hesitate to ask.

In this study, I hope to learn if a particular school-based group program will help high school students with depression, both in reducing their depression and improving their academic performance. This research is being done in fulfillment of requirements for a degree from Central Michigan University.

Your adolescent is eligible to participate in this study because he or she is a Beaverton High School student who is (1) currently receiving special education services under the classification of Emotional Impairment and shows elevated levels of depression or (2) has been identified by a school counselor or social work as showing some clinical features of depression.

If you decide to allow your adolescent to participate in this research project, he or she will be assigned to one of three groups: (1) a group of students participating in the *Strong Teens Program*, (2) a small current events discussion group, or (3) a group not participating in either of these groups (following their normal class schedule). Students placed in either the *Strong Teens* or current events groups will meet for twelve sessions over approximately six weeks. Students in the *Strong Teens* group will learn ways to cope effectively with difficult emotions, thoughts, and situations. More specifically, the *Strong Teens Program* is designed to teach students how emotions connect with thoughts and behaviors, how to change negative patterns of thinking, how to relax, how to deal with anger, how to understand their own and others' feelings, how to solve people problems, and the importance of setting goals and staying active. These skills are taught through instruction, discussion, worksheets, and brief homework assignments, and students participating in the program are also given the opportunity to practice what they've learned through role-playing and other in-class exercises.

All students participating in the study will complete a rating scale of depression before and immediately following the period during which the groups are run. In addition, three of your adolescent's teachers will provide the researcher with periodic information on classroom performance (e.g., percentage in the class, number of assignments turned in). This study will take place between March of 2008 and May of 2008. The total time that your child will be participating in the study is approximately 10 weeks, extending from late March to mid-May 2008. Six weeks of this period will include student involvement in one of the three groups.

If you decide to allow your adolescent to participate in this study, and they are placed in the *Strong Teens* group, they will be taking part in a program that shares many features of longer programs that have shown themselves to help depressed adolescents. Hence, I anticipate that your son or daughter's participation in the *Strong Teens Program* will be beneficial. However, in the course of the program, students may be dealing with some sensitive issues. As they move through the program's various activities, they will be asked to identify and describe their emotions – both pleasant and unpleasant, share thoughts that accompany these emotions, give examples of difficult situations, talk about conflicts with others, and apply skills they learn to things that are happening in their own lives. In thinking and talking about these personal issues, they may briefly experience some emotional discomfort. To prevent any long-term emotional distress or harmful behavior resulting from this, group leaders of *Strong Teens* have training and follow guidelines for providing instruction and support, while rewarding appropriate behavior.

INITIAL THAT YOU HAVE READ THIS PAGE

Students are given opportunities to “work through” their thoughts and feelings and are not pressured to reveal anything that makes them feel uncomfortable; group rules are established to promote mutual respect, cooperation, and trust. Students are also given information about individuals in the school and community who are available to help them.

As with any group-counseling situation, there is some risk that others may share personal information about a student with others outside the group. This risk is minimized through an emphasis on confidentiality and confronting breaches directly within the group.

If your son or daughter is placed in either the *Strong Teens* or the current events group, they will have to miss one of their academic classes each week. I will work directly with their teachers to arrange for alternate times and assistance for making up missed work. Involvement in one of the three groups will be in addition to any services already provided, such as those that are part of a student’s Individualized Educational Plan (IEP).

Finally, as a school psychologist and a researcher working in the schools, I have an ethical and legal responsibility to protect students by reporting knowledge of suspected abuse to the appropriate legal agencies. I am also required to directly intervene in cases where a student indicates plans or intentions of hurting themselves or others.

It is possible that, as a result of participation in this study, your child will feel less depressed, get better grades in school, and cope better with difficult thoughts, feelings, and social situations. It may also provide high schools an effective means of helping adolescents who are suffering from depression, while at the same time, leading to an improvement in their academic performance.

You may choose to withdraw your child from the study at any time. Special education services as outlined in your child’s IEP (if applicable) will not be affected in any way from withdrawal from the study. If the study design or use of information is changed, you will be informed and your consent obtained for the revised research study.

Any information obtained during the course of this study that could identify your adolescent will be kept strictly confidential. The information may be presented at scientific meetings or used to advocate for additional programs in the school district, but your child’s identity will be kept strictly confidential. Rating scales and their results will be kept in a confidential special education file, and may be used as sources of information to determine continued eligibility for special education services.

If you have additional questions later, I will be happy to answer them at the number listed above.

You and your adolescent will be given a signed and dated copy of this form to keep.

My signature below indicates that I have voluntarily decided to allow my child to participate in this research project as a subject and that I have read and understand the information provided above.

Parent’s or guardian’s signature

Date

Parent or guardian’s printed name

In my judgment, the participant is voluntarily and knowingly giving informed consent to participate in this research study.

Researcher’s signature

Date

Researcher’s printed name

Initial that you have read this page

It is possible that this study will help you and other students feel less depressed, get better grades in school, and deal better with difficult thoughts, feelings, and situations. It may also give your school a good way to help students who are depressed and to help them improve their grades.

You and your parents will be given a signed and dated copy of this form to keep.

Your signature below indicates that you have voluntarily decided to participate in this research project and that you have read and understand the information provided above.

Student's signature

Date

Student's printed name

In my judgment, the participant is voluntarily and knowingly giving informed assent to participate in this research study.

Researcher's signature

Date

Researcher's printed name

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