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Predicting early adolescents' academic achievement and in-school behavior with a dual-factor model of mental health

Amanda L. Thalji
University of South Florida

Predicting Early Adolescents' Academic Achievement and In-School Behavior with a Dual-Factor Model of Mental Health

by

Amanda L. Thalji

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Major Professor: Shannon M. Suldo, Ph.D.
Kathy Bradley-Klug, Ph.D.
John Ferron, Ph.D.

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Dedication

I would like to dedicate this thesis to my father, who taught me that anything can be accomplished with good faith and hard work. It is also dedicated to my mother for always reminding me of the big picture and for offering her proof-reading assistance throughout this project. My educational pursuits would surely not be what they are today without their endless amounts of encouragement and love.

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Predicting Early Adolescents' Academic Achievement and In-School Behavior with a Dual-Factor Model of Mental Health

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ABSTRACT

A dual-factor model of mental health includes indicators of wellness (i.e., subjective well-being) and psychopathology (i.e., internalizing and externalizing behavior problems) in defining psychological wellness. The present empirical investigation examined the utility of SWB and psychopathology examined separately and together (as in a dual-factor model of mental health) in predicting students' subsequent academic achievement and in-school behavior. Specifically, it determined if SWB, psychopathology, and membership in a specific mental health group yielded by the dual-factor model (i.e., complete mental health, vulnerable, symptomatic but content, or troubled) at Time 1 was related to achievement (i.e., GPA, FCAT-math, FCAT-reading, absences, office disciplinary referrals [ODRs]) the following school year (i.e., Time 2). A previously analyzed data set (Time 1) and a different archival data set yielded from student records unique to the current study (Time 2) comprised of data from 300 adolescents were analyzed. Results of regression analyses to explore the predictive initial relationship of mental health to later student achievement indicated that initial SWB predicted student grades one year later, initial internalizing psychopathology predicted absences one year later, and initial externalizing psychopathology predicted grades, absences, and ODRs one year later. Results of mixed model ANCOVAs indicated that

students' grades and attendance across time varied as a function of mental health group. Specifically, students belonging to the troubled mental health group declined at a significantly faster rate than youth without psychopathology across time on GPA. In contrast, the slope of students in the symptomatic but content group was not significantly different from the slope of peers with low psychopathology. Additionally, at Time 2, the best school attendance and school grades were found by students who had both average/high SWB and low psychopathology one year earlier, supporting the long-term utility of complete mental health.

Chapter 1

Introduction

Statement of Problem

The current perspective of psychology conceptualizes individuals from a frame of reference focused primarily on an individual's psychopathology, dysfunctions, and flaws (Seligman & Csikszentmihalyi, 2000). In recent years, behavioral researchers have advocated for the use of a more comprehensive framework of mental health (Lopez & Guarnaccia, 2000; Maddux, 2005; Seligman, 2005). Specifically, a modern approach stipulates the absence of psychopathology alone does not indicate wellness, and implores practitioners to focus on individuals' strengths, rather than only considering individuals' faults (Seligman, 2005). Contemporary evidence suggests there is utility in an approach that focuses on a positive state of mind in youth, rather than just remediating an individual's weaknesses and disorders (Gilman & Huebner, 2006; Park & Peterson, 2006; Seligman & Csikszentmihalyi, 2000; Suldo & Huebner, 2006). Additionally, this notion of promoting psychological well-being is aligned with goals that are integral of effective school-based mental health services (Doll & Cummings, 2008). This paradigm shift to a more comprehensive and preventative psychology is commonly referred to as positive psychology.

The current study, which sought in part to provide a longitudinal follow-up to research conducted by Suldo and Shaffer (2008), investigated the relationships between participants' initial mental health status as it pertains to their educational functioning the

following school year. Mental health is comprised of modern indicators of wellness (specifically, subjective well-being [SWB]) as well as traditional indicators of psychopathology (namely, internalizing and externalizing symptoms of mental disorders). Students' SWB is relevant to their educational functioning (Suldo, Shaffer, & Riley, 2008), for instance, numerous studies have demonstrated positive concurrent relationships between school grades and SWB (Huebner & Gilman, 2006; Suldo, Shaffer, & Riley, 2008). Additional studies have supported positive linkages from perceptions of school climate, beliefs about learning, and academic self-efficacy to a component of SWB, life satisfaction (Gilman & Huebner, 2006; Kirkcaldy, Furnham, & Siefen, 2004; Reschly, Huebner, Appleton, & Antaramian, 2008; Suldo & Huebner, 2006; Suldo & Shaffer, 2008; Suldo, Shaffer, & Riley, 2008). Life satisfaction has also been found to be related to students' perceptions of school-based support; specifically, youth who report having high life satisfaction tend to also perceive that adults and peers support their academic endeavors (Nevin, Carr, Shevlin, Dooley, & Breaden, 2005; Suldo & Huebner, 2006; Suldo & Shaffer, 2008), and having these healthy interpersonal relationships with peers and adults promotes achievement motivation (Hall-Lande, Eisenberg, Christenson, & Neumark-Sztainer 2007; Nelson & DeBacker, 2008). Despite a recent influx in research examining concurrent links between indicators of wellness and developmental outcomes, research examining predictive outcomes of SWB has been largely restricted to adult populations. In fact, a review of the literature yielded no studies that examine SWB in relation to academic outcomes in adolescents. The current study aimed to address this gap in the literature by providing a longitudinal exploration of early adolescents' levels of SWB as they pertain to subsequent educational functioning.

Relationships between psychopathology and domains of developmental functioning have long been evaluated in behavioral research. Specifically, studies have demonstrated that the presence of internalizing disorders, such as anxiety and depression, are related to poor academic achievement and reduced academic engagement in childhood and adolescence (Fergusson & Woodward, 2002; Lewinsohn, Seeley, & Gotlib, 1997; McCarthy, Downes, & Sherman, 2008; Woodward & Fergusson, 2001). Negative concurrent relationships and predictive relationships regarding externalizing problems such as ADHD and aggression have also been linked to lower school achievement (Eisenberg & Schneider 2007; Frazier, Youngstrom, Clutting, & Watkins, 2007; Loveland, Lounsbury, Welsh, & Buboltz, 2007). Externalizing disorders are also associated with lower rates of enrollment in higher education and less successful employment in adulthood (Capaldi, 1992; Caspi, Wright, Moffitt, & Silva, 1998; Dubow, Huesman, Boxer, Pulkkinen, & Kokko, 2006; Ingoldsby, Kohl, McMahon, Lengua, & The Conduct Problems Prevention Research Group, 2006; Kokko & Pulkkinen, 2000; Young, Heptinstall, Sonuga-Barke, Chadwick, & Taylor, 2005). However, a review of the literature reveals that many studies examining predictive relationships between psychopathology and academic achievement are limited by the use of assessments of academic ability that are not necessarily readily available to school personnel (e.g., teacher ratings, normative academic achievement tests), and intelligence tests. The current study explored student psychopathology in relation to subsequent academic outcomes that are more readily accessible to educators and applicable to long-term school achievement: absences, school grades, and performance on a state-wide high-stakes achievement test.

There has been recent evidence to substantiate a transition from traditional to positive psychology, specifically, research which supports a distinction between wellness and psychopathology in youth. The dual-factor model of mental health (cf. Greenspoon & Saklofske, 2001; Suldo & Shaffer, 2008) examines indicators of wellness (i.e., SWB) and psychopathology (i.e., internalizing and externalizing behavior problems). Greenspoon and Saklofske (2001) first examined the utility of the dual-factor model in 407elementary aged students. In this study, they identified subgroups of students who, using traditional assessments of mental health, would typically be overlooked. Specifically, assessing mental health via measures of wellness and psychopathology led to the identification of two unique groups of children: those who reported high SWB and high psychopathology, as well as students who scored low on measures of psychopathology and low on indices of SWB. Two other groups of children were those commonly studied in a traditional model of psychology: students with high psychopathology and low SWB, and students without psychopathology who reported high SWB. In exploring commonalities among the four groups, it was found that the two groups who reported low SWB (i.e., low SWB and low levels of psychopathology; low SWB and high levels of psychopathology) had low self-concept related to academic competence as well as poorer interpersonal skills, underscoring the importance of high SWB to children's adjustment. Suldo and Shaffer (2008) replicated and extended the findings by Greenspoon and Saklofske (2001), by utilizing measures of SWB and psychopathology in approximately 350 middle school students to identify four unique mental health groups. Results indicate that students with complete mental health (i.e., high SWB and low psychopathology) were more academically successful than their vulnerable peers (i.e., low SWB and low

psychopathology). Youth categorized as vulnerable did not perform as well as their complete mental health peers on a standardized state test of reading achievement and had more frequent absences from school. Students identified as symptomatic but content (i.e., high SWB and high psychopathology) perceived more positive interpersonal relationships with peers and reported having more social support from their parents than perceived by peers categorized as troubled (i.e., low SWB and high psychopathology). Additionally, this study proposed that students who are symptomatic but content, reporting high levels of both SWB and psychopathology, may also have strengths. The current study provides a longitudinal follow-up to research conducted by Suldo and Shaffer (2008) that investigates the relationships between participants' initial mental health status as it pertains to their educational functioning the following school year.

Definition of Key Terms

Subjective well-being. Subjective well-being (SWB) is a broad construct that is comprised as both cognitive judgments of one's life as well as experiences of positive and negative emotions (Diener, Lucas, & Oishi, 2005; Haybron, 2008). In other words, SWB is comprised of three related, but separate constructs: life satisfaction, positive affect, and negative affect (Diener, 2000). Life satisfaction is the appraisal of the enduring satisfaction one has with his or her life, based on a set of criteria an individual has constructed from their own beliefs or perceptions (Diener & Diener, 1996; Diener, et al., 2005). Life satisfaction can be assessed globally or within specific domains. Measures that relate to an individual's overall assessment of happiness are considered a global assessment, whereas domain-specific life satisfaction refers to happiness across both self-directed and outer-directed domains. Research has supported a high correlation between

global and domain-specific life satisfaction (Huebner, Gilman, & Laughlin, 1999). Affective evaluations are conceptualized as pleasant or positive affect, as well as the frequency of negative emotions, referred to as negative affect (Larsen, Diener, & Emmons, 1985). Affect is often considered the hedonic component of subjective well-being due to the fact that this emotional component is adjusted based upon situational influences (Larsen & Prizmic, 2008). In the current study, student SWB was estimated by adding their standardized scores on measures of life satisfaction and positive affect, and subtracting standardized negative affect scores.

Psychopathology. In youth, social, emotional, and behavioral problems are commonly classified by the use of the behavioral dimensions approach. The behavioral dimensions approach employs statistical procedures that yield behavioral clusters (Merrell, 2008). Using this method, behavioral researchers have discerned general types of behavioral and emotional problems along two broad-band syndromes. Specifically, internalizing problems, also called overcontrolled behaviors (e.g., anxiety, depression, somatic complaints), and externalizing problems, or undercontrolled behaviors (e.g., aggressive behavior, rule-breaking behavior, and hyperactivity). Youth diagnosed with internalizing problems or disorders typically deal with difficulties internally, rather than acting them out in the environment. In contrast, externalizing problems are characterized by behaviors directed outward, typically toward other people or objects in the environment. In the current study, student psychopathology was indicated by elevated scores on nationally-normed inventories of internalizing and externalizing symptoms of mental health problems.

Academic achievement and in-school behavior. In the current study, student functioning within the context of school has been conceptualized as students' performance on objective academic indicators, as well as their school behavior. Regarding objective indicators of achievement, students' course grades and their performance on a standardized state test of achievement (i.e., the Florida Comprehensive Assessment Test; FCAT, 2005) in math and reading was examined. In-school behavior was explored via student absences and office disciplinary referrals (ODRs).

Dual-factor model. A dual-factor model of mental health includes indicators of wellness (i.e., subjective well-being) and psychopathology (i.e., internalizing and externalizing behavior problems) in defining mental health (cf. Greenspoon & Saklofske, 2001; Suldo & Shaffer, 2008). Specifically, this model supports the assumption that psychopathology and SWB are two separate, yet interrelated constructs. Greenspoon and Saklofske (2001) first administered assessments of psychopathology and SWB to identify four mental health categories for children. Two of these classifications were aligned with a traditional model of mental health: (1) "distressed youth" (low levels of SWB and high levels of psychopathology) and (2) "well-adjusted youth" (high levels of SWB and low levels of psychopathology). Additionally, this model yielded two unique groups that are not observed when a traditional model of mental health is used: (1) "externally maladjusted" (high levels of SWB and high levels of psychopathology) and (2) "dissatisfied" (low levels of SWB and low levels of psychopathology). A recent examination of the dual-factor model was conducted by Suldo and Shaffer (2008) who extended the findings of Greenspoon and Saklofske (2001) to yield four distinct mental health groups in middle school youth. Suldo and Shaffer (2008) assessed students' levels

of psychopathology and SWB to yield four distinct mental health groups: "complete mental health" (i.e., high SWB and low psychopathology), "vulnerable" (i.e., low SWB and low psychopathology), "symptomatic but content" (high SWB and high psychopathology), and "troubled" (i.e., low SWB and high psychopathology). The current study has employed this conceptualization of the dual-factor model of mental health and specific terms used to describe the four mental health groups yielded by Suldo and Shaffer (2008).

Purpose of Current Study

The current study was intended to provide a longitudinal examination of the extent to which students' initial levels of SWB and psychopathology, respectively, predicted their academic achievement and in-school behavior the following school year. Additionally, this study aimed to further explore the implications of utilizing the dual-factor model (Suldo & Shaffer, 2008) by examining the extent to which student academic achievement can be predicted from students' initial mental health group membership as derived from levels of SWB and psychopathology. To date, no studies have looked at the dual-factor model in relation to later school functioning, a vital component of adolescent functioning (Berk, 2006). The current study's conceptualization of academic or school functioning is consistent with Roeser, Eccles and Sameroff's (2000) conceptualization of adolescent psychosocial functioning with respect to schooling, which includes academic achievement and school attendance as important indicators. School discipline records (i.e., ODRs) were also examined to determine how membership in a particular mental health group relates to later in-school behavior.

The specific research questions answered in this study include:

1. Does SWB at Time 1 predict students' subsequent achievement and in-school behavior at Time 2 (controlling for achievement and in-school behavior at Time 1) on the following indicators of achievement and in-school behavior: GPA, FCAT-math, FCAT-reading, absences, and ODRs?
2. Does psychopathology at Time 1 predict students' subsequent achievement and in-school behavior at Time 2 (controlling for achievement and in-school behavior at Time 1) on the following indicators of achievement and in-school behavior: GPA, FCAT-math, FCAT-reading, absences, and ODRs?
3. Is membership in a specific mental health group (i.e., complete mental health, vulnerable, symptomatic but content, or troubled) at Time 1 related to subsequent achievement and in-school behavior (i.e., GPA, FCAT-math, FCAT-reading, absences, ODRs) at Time 2 (controlling for achievement and in-school behavior at Time 1)?

Contributions to the Literature

There have been a number of studies that have examined academic correlates and predictors of children's and adolescents' mental health, but none have examined how measurements of SWB predict academic achievement and in-school behavior longitudinally. The current study thus contributes to the literature by providing the first longitudinal examination of SWB and the dual-factor model of mental health in relation to later academic achievement and in-school behavior. With respect to the dual-factor model, the identification of a particular subgroup of youth whose academic performance diminished over time may demonstrate the need to provide services or additional supports

to this group of individuals. Similarly, evidence of diminished performance of students who exhibit characteristics of those in the vulnerable youth category, provides empirical support that psychologists and school personnel should attend to mental health beyond psychopathology or illness, as these youth may be at risk despite the absence of psychopathology.

Chapter 2

Review of the Literature

This chapter reviews the progression of mental health research and practice from a field focused solely on psychopathology to one that also examines positive attributes of wellness. First, a summary of traditional approaches in mental health is provided, followed by an overview of a modern alternative approach to mental health, termed positive psychology. Research which utilizes both of these approaches to form a comprehensive model of mental health is thereafter explored. Relationships between mental illness and wellness, academic achievement, and in-school behavior are delineated. Finally, research exploring the predictive qualities of mental illness and wellness to academic achievement and in-school behavior in youth is summarized.

Traditional Approaches to Mental Health

Traditionally, mental health assessment has focused on diagnosis based on the presence or absence of psychopathology. Psychopathology is often conceptualized as referring to both internalizing disorders (e.g., anxiety, depression) and externalizing disorders (e.g., conduct disorder, oppositional defiant disorder; American Psychiatric Association, 2000). The *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision* (DSM-IV-TR; American Psychiatric Association, 2000) is a common tool used by practitioners, which prioritizes an illness-oriented psychology as a mechanism of diagnosing or labeling patients with the benefit to facilitate communication between professionals and to aide in informing interventions (Maddux, 2005). However,

others (e.g., Maddux, 2005, Seligman & Csikszentmihalyi, 2000) have viewed the categories of the disorders featured in the DSM-IV-TR as a method of maintaining social order from what is perceived as normal or abnormal by those in power. Lopez and Guarnaccia (2000) stated that "psychopathology is as much pathology of the social world as pathology of the mind or body" (p. 578). Although this assertion may be extreme, it illustrates the argument that it is necessary to examine mental health from different perspectives, perhaps not discounting indices of psychopathology, but including such factors as personal strengths and aspects of a person's life that are protective or lend to resiliency in the assessment of mental health (Maddux, 2005).

Modern Alternatives to a Disease Model of Mental Health

As previously mentioned, contemporary psychology gives priority to a conception of people that, to an extreme, is based on pathology, faults, and dysfunctions (Seligman & Csikszentmihalyi, 2000). In recent decades there have been calls for a paradigm shift to a psychology based on empowerment and prevention, referred to as positive psychology. This movement asks that practitioners strengthen their clients' assets rather than "fix" their weaknesses (Seligman, 2005), empowering people to develop a more positive state of mind by utilizing their strengths and to encourage them to live a life that is fulfilling (Seligman & Csikszentmihalyi, 2000).

Positive Indicators of Mental Health

In the field of positive psychology, there are several constructs purported to estimate human functioning, primarily related to one's quality of life. These include variables related to one's perceptions of the past, including well-being and satisfaction, those related to the present, including experiences of flow and joy, as well as those

associated with the future, such as hope and optimism (Seligman, 2005). In the current study, the evaluation of subjective well-being, commonly referred to as happiness, has been emphasized.

According to Diener, Lucas, and Oishi (2005), subjective well-being (SWB) is a broad concept that "is defined as a person's cognitive and affective evaluations of his or her life" (p. 63). More specifically, SWB is comprised of three related, but separable constructs: life satisfaction, positive affect, and negative affect (Diener, 2000). Life satisfaction is the personal cognitive evaluation of the enduring satisfaction one has with his or her life, based on his or her own unique set of criteria (Diener & Diener, 1996; Diener, et al., 2005). These cognitive appraisals can be assessed globally and within specific domains. Global measures relate to an individual's overall assessment of happiness (e.g., "I am happy with my life"). Conversely, domain-specific life satisfaction has been measured as subjective happiness across both self-directed and outer-directed domains (i.e., school, friends, and family). Studies have supported a high relationship between global and domain-specific life satisfaction (Huebner, Gilman, & Laughlin, 1999). Moods and emotions comprise the affective evaluations, and represent the evaluations of the events that occur in people's lives (Diener, Suh, Lucas, & Smith, 1999). Affective evaluations are conceptualized as pleasant or positive affect, the frequency of positive emotions such as joy and excitement; as well as negative affect, the frequency of negative emotions such as guilt and gloom. Life satisfaction and affect are conceptualized as different constructs, as life satisfaction judgments are more stable than affect, which are considered temporary emotional experiences (Kim-Prieto, Diener, Tamir, Scollon, & Diener, 2005; Pavot & Diener, 1993). Research has demonstrated that

most people, including youth, are at least mildly happy (Biswas-Diener, Vitterso, & Diener, 2005; Diener & Diener, 1996; Huebner, Suldo, & Gilman, 2006). Although most youth report levels of satisfaction above a neutral point, few report the highest levels possible of life satisfaction (Huebner, Suldo, & Gilman, 2006). High SWB is viewed as advantageous because SWB has been found to co-occur with good relationships with self and with others and is further associated with positive indicators of school functioning (Suldo & Huebner, 2006; Suldo & Shaffer, 2008).

A longitudinal study by Huebner, Funk, and Gilman (2000) demonstrated that global life satisfaction is stable over time. In their study, 99 high school students were administered the Student Life Satisfaction Scale (SLSS; Huebner, 1991) and the Behavior Assessment Scale for Children (BASC; Reynolds & Kamphaus, 1992). The SLSS is a measure of global life satisfaction and the BASC is a norm-referenced instrument frequently used to assess behavior and emotional problems, such as depression and anxiety, as well as adaptive behaviors related to healthy development, such as interpersonal relationships and locus of control. Results from this study revealed moderate positive correlations between the BASC adaptive scales and life satisfaction (r = .22 to .48) as well as moderate negative correlations between life satisfaction and the scales evaluating problem behavior (r = -.12 to -.56). Moreover, a one-year test-retest coefficient suggests moderate stability (r = .53) of the SLSS. Overall, these findings suggest that SLSS scores are stable and yield meaningful relationships with traditional psychopathology-focused mental health factors (e.g., anxiety and depression) and measures frequently used in current mental health assessment (i.e., BASC). Recent

studies that examined the benefits of evaluating the SWB of adults and youth in addition to the utilization of traditional indicators of mental health are highlighted next.

Models that Examine Psychopathology and SWB

Recently, there has been a call for a more comprehensive framework for understanding mental health (Seligman, 2005). Specifically, one that conceptualizes an individual's mental health status as not solely dictated by the absence of pathology or disorder, but via a model that also takes into account positive factors (Keyes, 2007). The World Health Organization (2006) has defined health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (p. 1). Research with youth has yielded data that demonstrate psychological functioning is not a continuum; rather, combinations of positive and negative indicators provide a more complete understanding of an individual's mental health status, and support examining factors related to wellness and psychopathology (Greenspoon & Saklofske, 2001; Keyes, 2002; Suldo & Shaffer, 2008). For instance, a dual-factor model of mental health (cf. Greenspoon & Saklofske, 2001; Suldo & Shaffer, 2008) examines positive indicators (i.e., SWB) as well as negative indicators of psychopathology in youth (i.e., internalizing and externalizing behavior problems) and provides a comprehensive assessment of mental health in youth.

Keyes (2002). Keyes (2002) has suggested a categorical system of mental health with adults that evaluates individuals as "flourishing," "languishing," "moderately mentally healthy," and those with mental illness. In the study, a sample of 3,032 adults ages 24 to 74 years completed a survey of mental illness (i.e., Composite International Diagnostic Interview Short Form; Kessler, Andrews, Mroczek, Ustun, & Wittchen,

1998). Participants were also asked to evaluate their emotional mental health as "poor," "fair," "good," "very good," or "excellent." Additionally, participants completed a structured scale of six symptoms of positive affect, six scales of psychological well-being (e.g., positive relations with others and personal growth), and five scales of social well-being (e.g., social acceptance and social actualization). In order to be categorized as languishing in life, participants must have had a low level (i.e., lower tertile) on one out of two measures of emotional well-being, and low levels on six out of 11 scales of positive functioning. To be considered flourishing in life, participants must have reported a high level (i.e., upper tertile) on one out of two measures of emotional well-being and high levels on 6 out of 11 scales of positive functioning. In the study, 17.2% of participants were flourishing, or described as having complete mental health, as they reported in the upper tertiles on two scales measuring emotional well-being and on six out of 11 scales measuring psychological and social-well-being. Conversely, 12.1% of the sample size were classified as languishing because they had low levels of well-being and positive functioning, or scored in the lower tertile on one of the emotional well-being scales and on six of the psychological and social well-being scales. Whereas those classified as moderately mentally healthy (56.6%) reported levels of well-being that were in the middle tertile, on at least seven of 13 symptom scales, in other words functioning somewhere between those categorized as flourishing and those categorized as languishing. Lastly there were participants who reported one or more types of psychopathology (14.1%), specifically with major depressive episode. Further data demonstrates that participants who are categorized as languishing are twice as likely as those in the moderately mentally healthy participants to be at risk for a major depressive

episode and almost six times as likely as their counterparts in the flourishing category. This study illustrates the importance and applicability of evaluating indicators of wellness as they provide information relative to the prevention of illness. It has not been until recently that similar studies of youth have been conducted as described below.

Keyes (2006). Keyes later explored the same categorical system of mental health applied to adolescents (2006). In this study, 1,234 adolescents ages 12 to 18 completed items assessing SWB. Specifically, Keyes included 12 SWB items that had been adapted from a measure used with adults (Keyes & Magyar-Moe, 2003), which assessed the emotional, psychological, and social well-being of adults. Additionally, three items from the Child Development Supplement-II (CDS-II) of the Panel Study of Income Dynamics was applied to assess emotional well-being. Specifically, youth reported how frequently in the past month they felt: (a) happy, (b) interested in life, and (c) satisfied. Items from the CDS-II were also used to assess psychological well-being in regards to four dimensions: environmental mastery, personal growth, positive relations with others, and lastly, autonomy. Social well-being was assessed via items of the CDS-II across five dimensions of social-well-being: social contribution, social integration, social actualization, social acceptance, and social coherence. Keyes also assessed participants for symptoms of a common internalizing disorder, depression, with the Children's Depression Inventory (Kovacs, 1992). Participants' levels of conduct problems were assessed via self-report of the number of times they had been truant, been arrested, smoked cigarettes, smoked marijuana, used alcohol, and/or used inhalants to get high. Students' psychosocial functioning was assessed via the global self-concept scale (Marsh, 1990), a measure consisting of a 6-item scale tapping how frequently they feel good

about their abilities and themselves. Additionally, five items were used to measure participants' self-determination (e.g., I try to do my best on all my work.). Participants were asked to report how "close" they felt toward 6 individuals (i.e., mother/ stepmother, father/ stepfather, sibling, friends, teacher, and adults outside of school) to assess the amount of individuals to whom a youth feels close. Lastly, participants were asked to complete four items that assessed children's perception of school integration and quality. Based on these assessments, students were identified as flourishing, languishing, or having moderate mental health. In the age range of 12 to 14, the status of flourishing was the most common category, whereas for those ages 15 to 18, moderate mental health was the most common diagnosis. Further, Keyes explored outcomes associated with SWB and found an inverse relationship among symptoms of depression and SWB. Additionally, conduct problems, including arrests, truancy, and drug/alcohol use decreased and measures of psychosocial functioning (i.e., global self-concept, self-determination, closeness to others, and school integration) increased as SWB increased.

Greenspoon and Saklofske (2001). Empirical support for a proposed model of mental health in which psychopathology and SWB are two separate yet interrelated constructs in youth was first provided by Greenspoon and Saklofske (2001). In their study, 407 Canadian students in grades 3 through 6 completed questionnaires assessing SWB, psychopathology, personality, and other related constructs (e.g., locus of control, interpersonal relations). Greenspoon and Saklofske (2001) identified two unique sub-groups of individuals: children who reported high SWB but also scored high on indices of psychopathology, and children who scored low on indices of psychopathology and SWB. The results indicate that students belonging in both groups with low levels of SWB (i.e.,

low SWB and low levels of psychopathology, low SWB and high levels of psychopathology) had low self-concept related to academic competence as well as poorer interpersonal skills. These findings are unique, as a traditional approach to mental health (i.e., only examining psychopathology) may have disregarded those who reported low SWB but were not yet symptomatic.

Suldo and Shaffer (2008). The extent to which a dual-factor model of mental health applies to another cohort of students, specifically middle school students in grades 6 to 8, was investigated by Suldo and Shaffer (2008). Suldo and Shaffer administered measures assessing SWB (i.e., life satisfaction, positive affect and negative affect), and internalizing psychopathology as well as measures of physical health, social functioning, and attitudes toward schooling to 350 early adolescents; teachers of these youth provided data regarding symptoms of externalizing psychopathology exhibited. Their study supported previous findings, underscoring the utility of assessing positive indicators of self-perceived wellness along with more traditional measures of psychopathology. Specifically, the investigators extended Greenspoon and Saklofske's (2001) research, replicating findings that four distinct mental health groups exist. Suldo and Shaffer (2008) determined that: 57% of the sample had "complete mental health" (i.e., high SWB and low psychopathology), 13% were "vulnerable" (i.e., low SWB and low psychopathology), 13% were "symptomatic but content" (high SWB and high psychopathology), and 17% were "troubled" (i.e., low SWB and high psychopathology). Furthermore, Suldo and Shaffer's study found that students with complete mental health were more academically successful than their vulnerable peers. Vulnerable youth performed worse on a standardized measure of reading achievement and had higher rates

of absenteeism than students with complete mental health. Additionally, these vulnerable students reported diminished academic self-concept and lower motivation to self-regulate their behavior in the classroom. Lastly, vulnerable students viewed education as less important for long-term goals than students in the complete mental health group. Benefits of complete mental health were also identified regarding interpersonal functioning. Students identified as symptomatic but content perceived more positive interpersonal relationships with peers and more social support from their parents than perceived by troubled youth, who perceived the lowest levels of social support from parents.

The use of a dual-factor model to assess children's level of psychological functioning identifies two unique groups of students who otherwise may be overlooked with methods which solely assess psychopathology. Specifically, vulnerable students who are non-symptomatic of psychopathology, but report relatively low SWB, may be at-risk for later school failure. Conversely, students who have symptoms of psychopathology but report relatively high SWB (i.e., symptomatic but content) may possess strengths that allow them to flourish socially. The aforementioned research by Greenspoon and Saklosfe (2001) as well as the study by Suldo and Shaffer (2008) has provided evidence for the validity of classifying psychological functioning according to a dual-factor model of mental health in youth, as well as illustrated how membership in one of the four mental health groups may affect a student's current level of academic achievement and in-school behavior. However, no studies have looked at long-term outcomes associated with a dual-factor model through longitudinal research. One such important outcome is school functioning, a vital component of adolescent functioning

(Berk, 2006). School functioning, related to and predicted by psychopathology as well as indices of wellness, will be discussed in the upcoming sections.

Relationships between Youth Mental Health and Academic Functioning

Psychopathology and Academic Achievement and In-School Behavior

Historically, the definition of mental health has focused solely on presence or absence of psychopathology. This approach has demonstrated that childhood psychopathology has lifelong consequences and costs for youth as well as society, and many adult disorders have origins in childhood (Mash & Dozois, 2003). It is estimated that as many as one in five children in the United States has some type of mental health difficulty (Brown, Riley, & Wissow, 2007; Roberts, Roberts, & Xing, 2007). A study by the World Health Organization suggests that by the year 2020, childhood neuropsychiatric disorders will increase by over 50% worldwide, to become one of the five most common causes of morbidity, mortality, and disability among youth (U.S. Public Health Service, 2000). In the next section, research will be explored that examines concurrent relationships between psychopathology and academic achievement as well as in-school behavior in youth is summarized, additionally ways in which disorders predict later academic outcomes over the developmental lifespan of youth are reviewed.

Concurrent relationships. Internalizing disorders reflect overcontrolled symptoms, meaning that these problems are to some extent due to an individual's attempt to maintain maladaptive control of his or her emotional and cognitive state (Merrell, 2008). Depression and anxiety are two of the most common childhood internalizing disorders in youth (Albano et al., 2003; Costello et al., 2005; Huberty, 2008; Rushton, Forcier, & Schectman, 2002). Results of prevalence studies estimate that 4.75% of youth

ages 5 to 17 suffer from major depression and 8% of youth have a diagnosable anxiety disorder; variability in exact rates is attributed to the criterion used (Costello, Egger, & Angold, 2005). Both of these disorders are associated with poor academic functioning in youth. Numerous studies have demonstrated a negative relationship between symptoms of internalizing disorders and grades (Lewinsohn, Seeley, & Gotlib, 1997; McCarthy, Downes, & Sherman, 2008). Puig-Antich et al. (1993) interviewed 62 adolescents with major depressive disorder and their mothers. Puig-Antich and colleagues found that these students experienced more behavior problems at school, had lower academic achievement, as well as less positive relationships with teachers when compared to peers without psychiatric diagnoses. Other studies have examined specific academic outcomes associated with psychopathology. For example, Lewinsohn, Seeley, and Gotlib (1997) examined psychosocial variables and outcomes associated with three groups of high school students: adolescents with depression *(n* = 48), adolescents with nonaffective disorder *(n* = 92), and adolescents who had never been mentally ill (*n* = 1,079). Adolescents with depression met criteria according to the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 1980) for major depression or dysthymia. The nonaffective disorder group consisted of participants who met criteria, in about equal proportions, for anxiety disorders, disruptive behavior disorders, or substance use disorders. In this study, only those youth in the nonaffective disorder group had academic problems (e.g., significantly lower GPA, report of dissatisfaction with grades, parental dissatisfaction with grades, reported being late for school in the past 6 weeks, reported not completing homework, and repeating a grade). A possible reason for these discrepant results is the unique design of this study.

Specifically, the grouping of students with anxiety disorders, disruptive behavior disorders, and substance use disorders under the same category may be considered unusual, as anxiety is typically categorized as an internalizing disorder, whereas disruptive behaviors and substance use are often considered to be externalizing disorders.

Externalizing disorders refer to a dimension of problems which includes a broad array of aggressive, acting-out, disruptive, antisocial, oppositional, defiant, and hyperactive behaviors (Merrell, 2008). Common childhood externalizing disorders include attention deficit/ hyperactivity disorder (ADHD), oppositional defiant disorder (ODD) and conduct disorder (CD). These three common childhood problems will be discussed as they relate to academic functioning. The median prevalence estimate of ADHD is 3% (Costello, Egger, & Angold, 2005). Among high school age adolescents, disruptive behavior disorders are approximately twice as likely for male students than for female students (Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993). According to Barkley (2006), adolescents with ADHD have significantly poorer academic outcomes than adolescents without ADHD. Specifically, adolescents with ADHD are more likely to fail a grade, have increased school suspensions and expulsions, and have lower levels of academic achievement on standardized tests of math, science, and reading. Additionally, both female and male students with ADHD have worse perceptions about their own academic abilities compared to students without ADHD (Eisenberg & Schneider, 2007). Parents and teachers of these youth also have poor expectations for their academic performance, with more prominent negative perceptions for females (Eisenberg & Schneider, 2007). These academic outcomes associated with ADHD have recently been summarized via a meta-analysis conducted by Frazier, Youngstrom, Clutting, and

Watkins (2007) of literature published since 1990 regarding the breadth of academic achievement problems experienced by youth with ADHD. This analysis yielded effect sizes that were significantly different between youth with and without ADHD. Specifically, effect sizes ranged from r = .05 to .44 for studies examining adolescents and ranged from r = -0.14 to .76 for studies examining children. The largest effect occurred in the academic achievement subject area of reading (d = .73), followed by math (d = .67), and then by spelling, (d = .55). Frazier, Youngstrom, Clutting, and Watkins (2007) provide further discourse on the multitude of achievement problems experienced by youth with ADHD.

Forms of externalizing psychopathology other than ADHD have also been found to have negative effects on student achievement (Hinshaw, 1992; Hinshaw & Lee, 2003). One perspective provides evidence which suggests that youth with behavioral problems have slightly lower levels of intellectual functioning, particularly regarding verbal abilities, than asymptomatic youth (Alvarez & Ollendick, 2003). This slight discrepancy may adversely affect their academic performance in school. Regardless of intellectual ability, evidence suggests that antisocial or aggressive behavior in adolescents undermines student achievement dramatically, as demonstrated in a study by Loveland, Lounsbury, Welsh, and Buboltz (2007). Loveland et al. recruited a sample of approximately 990 high student students from the United States and found aggression accounted for 16% of the variance in students' achievement (i.e., grade point average). Similar studies in which aggression is measured via observation or adult report (as opposed to self-report) are needed. Additional research by Graham, Bellmore, and Mize (2006) offers a different perspective of aggressive or anti-social behavior in youth.

Graham et al. examined peer victimization and aggression in a diverse sample (46% Latino; 26% African American; 11% Asian; 9% White; 8% biracial or multiracial) of 1985 sixth grade students from 11 middle schools. In this study, peer nomination was used to determine which students had reputations of being aggressive, whereas others had reputations of being victims of aggression. Additionally, teacher report was used to assess student school engagement. Results indicate that youth categorized as aggressors by their peers were more likely to have low GPAs and have lower levels of teacher-rated engagement.

Predictive relationships. There have been several studies exploring the developmental effects of the onset of internalizing and externalizing in youth. For instance, Masten et al. (2005) examined predictive relationships related to externalizing disorders in childhood on developmental outcomes. Masten and colleagues followed over 200 children, who at initial assessment were 8 to 12 years old, for 20 years. These youth were assessed at 7, 10, and 20 years. Academic competence was assessed via four indicators: the total score on the Peabody Individual Achievement Test (Dunn & Markwardt, 1970), grade point average at initial data collection, a teacher rating from the Devereux Elementary School Behavior Rating Scale (Spivack & Swift, 1967), and a composite variable derived from three explicit questions included in a structured parent interview. Overall, findings from this study suggested that externalizing problems in childhood were related to lowered academic competence in adolescence, which was related to internalizing problems in young adulthood.

Other studies have focused their efforts more explicitly on specific disorders. For example, Cole, Martin, Powers, and Truglio (1996) conducted a longitudinal study with

490 third grade students and 455 sixth grade students. Data were obtained regarding depression, as well as social and academic competence, via self-reports completed by students, nominations by peers, as well as teacher and parent reports. Data were collected in the beginning of the school year and at the end. Unlike Masten's (2005) results, Cole et al. (1996) did not find deterioration in participants' academic competence. In other words, the belief that academic competence deteriorates because of depression was not supported. In fact, students' level of academic competence was stable over the 6-month period. These findings, however, should be interpreted with caution, as measures of actual academic performance, such as performance on academic standardized tests or course grades may deteriorate over this time. Further, competence in academic domains may deteriorate beyond the 6-month period.

A number of studies have provided evidence of negative relationships between symptoms of depression and anxiety, and later academic achievement (Fergusson & Woodward, 2002; Woodward & Fergusson, 2001). For example, Fergusson and Woodward (2002) conducted a longitudinal exploration of 1,265 children ages 14 to 16 in New Zealand over a 21 year period as part of the Christchurch Health and Development Study. Students' symptoms of major depression were evaluated using the self-report and parent versions of the Diagnostic Interview Schedule for Children (DISC; Costello, Edelbrock, Kalas, Kessler, & Klaric, 1982) as well as criteria from the *Diagnostic and Statistical Manual of Mental Disorders-Revised* (DSM-III-R; American Psychiatric Association, 1987) at the onset of the study (ages 14 to 16). Academic achievement was assessed by recording the age at which participants withdrew from school (i.e., dropout rate), their participation in tertiary education (i.e., enrollment in a trade- or skill-based

training program), and their enrollment in a university level education program or similar program by the time the participant was 21 years of age. Social, familial, and individual factors and comorbid disorders were also taken into account. Results indicated that 13% of participants developed depression between ages 14 and 16. These individuals were at increased risk for educational underachievement (i.e., high rates of school dropout, reduced likelihood of enrolling in a university or tertiary level education) compared to their counterparts. Specifically, of those youth diagnosed with depression at ages 14 and 16, approximately 26% reported leaving school prematurely and only 22% of these youth enrolled in a university. Conversely, only 17% of participants who did not meet the diagnostic requirements for depression left school prematurely and 32% of these non-depressed youth enrolled in tertiary education. This study provides further evidence of the need to assess for mental health problems in youth and the need to intervene appropriately, in part to prevent premature school dropout.

Another longitudinal study by Woodward and Fergusson (2001) utilizing the same sample from Christchurch Health and Development Study in the aforementioned study (Fergusson & Woodward, 2002) of over 1200 children in New Zealand. These youth were assessed for the following anxiety disorders: generalized anxiety, specific phobia, separation anxiety, panic disorder, and social phobia, as assessed by self-report and parent versions of the DISC (Costello, Edelbrock, Kalas, Kessler, & Klaric, 1982) and diagnoses were based on the *DSM-III-R* criteria for anxiety disorders at ages 14 to 16 years. For those adolescents who did not have anxiety disorders from ages 14 to16, 34% of them entered college by age 21, whereas only 26% of adolescents who were diagnosed with one anxiety disorder attended college. Further, only 19% of participants diagnosed

with 2 anxiety disorders and 13% of students diagnosed with 3 or more anxiety disorders attended college.

Additional research has focused on longitudinal educational outcomes in relation to externalizing disorders. As children diagnosed with ADHD navigate adolescence, they are more likely to be retained, have lower performance in classes as evaluated by report cards, and perform more poorly on standardized measures of academic achievement compared to peers without ADHD (Loe & Feldman, 2007). For instance, Young, Heptinstall, Sonuga-Barke, Chadwick, and Taylor (2005) examined outcomes of females (n = 70) in England who demonstrated hyperactive behaviors. Rating scales were completed by parents and teachers when the students were at 7 years of age. At the time, these students were categorized within one of four groups according to their results on the rating scales: hyperactivity; conduct problems; comorbidity of hyperactivity and conduct problems; non-symptomatic control. Measures were completed again when the students were 14 to 16 years old, in addition to a clinical interview with the child. Hyperactivity at age 7 was a risk factor for later school behavior, as it predicted the likelihood of suspensions, whereas conduct problems did not.

The detrimental effects of externalizing problems on achievement extend to other global populations as well. Lopes (2007) investigated behavioral, emotional, and academic problems in a sample of 116 students from one public seventh grade school located in an urban area of Portugal. Data collection occurred in the beginning of the school year and the end via a revised form of the Connors' Behavior Rating Scale-Teacher Form (Queirós, 2006). The scale was translated and adapted into Portuguese by Queirós to assess two factors: externalized (17 items) and internalized (10 items)

problems. Students' academic performance was collected twice every trimester for a total of six times via school achievement tests. The achievement tests were developed by three classroom teachers from the respective school to assess students' competence in the core areas of their curriculum: the Portuguese language, the English language, and mathematics. Cut-off scores based upon those typical of Portuguese high-schools were used to evaluate participant performance, such that students who performed below 35% were considered to have "very poor performance," those with a performance between 36 and 50% as "poor," performance between 51% and 70% as "average" and finally, a performance above 70% as "high" performance. Results include that students rated as having externalizing behavior problems were much more likely to also perform in the "poor" range, compared to those who perform in the "average" to "high" range. However, the majority of students in the study were referred for internalizing problems, rather than externalizing problems. This unbalanced sample size may have attributed to lack of diversity among youth in the externalizing problems category and thus overrepresentation of externalizing youth in the "very poor" performers category (52%) compared to those students with internalizing problems in this group (19%).

Other studies have demonstrated that children who experience aggression and conduct problems often experience difficulties later on, such as having low educational attainment, unemployment, lower occupational status, or an unstable career path (Caspi, Wright, Moffitt, & Silva, 1998; Dubow, Huesman, Boxer, Pulkkinen, & Kokko, 2006; Ingoldsby, Kohl, McMahon, Lengua, & The Conduct Problems Prevention Research Group, 2006; Kokko & Pulkkinen, 2000). In a longitudinal investigation by Dubow and colleagues (2006), aggressive behavior, among other variables, was evaluated as related

to later adolescent and adult functioning in a sample of youth from the United States and Finland. The United States sample consisted of over 850 third grade students (436 males and 420 females) in a semirural county. Initial data collection occurred in 1960, and additional follow-up assessments were conducted in 1970 (n = 427), 1981 (n = 409), and between the years 1999 and 2002 (n = 523). At the age of 8, cognitive and academic achievement was measured via an IQ test and teachers' ranking of participants' academic achievement. A peer nomination procedure created by Eron, Walder, and Lefkowitz (1971) was used to assess aggression. In the North American sample, cognitive and academic achievement were negatively related to aggression (r = -.34). Aggression at age 8 predicted more aggression at age 19, which was inversely associated with education at age 30 and occupation at age 48. The same trend was found in the Finnish sample. Results from Dubow et al.'s study suggest that children and adolescents who engage in aggressive behavior will later experience low educational outcomes in early adulthood, and eventually lower occupational attainment in adulthood.

Effects of externalizing disorders as well as comorbid externalizing and internalizing have been studied by Capaldi (1992), specifically in an examination of examined conduct problems and depressive symptoms in an at-risk community sample of 203 early adolescent boys. At sixth grade the participants were divided into the following four groups: (a) conduct problems and depressed mood, (b) conduct problems only, (c) depressed mood only, and (d) no-problem control. The four groups were compared in eighth grade. Those participants with comorbid conduct problems and depressive symptoms were more likely to have been arrested, as well as have poor academic achievement.

In summary, psychopathology, manifested as internalizing and externalizing disorders, is predictive of negative outcomes in youth. Specifically, the presence of mental disorders such as anxiety, depression, and ADHD are related to poor academic achievement and engagement in school during youth. As adults, these children and adolescents are more likely to be faced with bleak opportunities for higher education and successful employment. In the next section, similar relationships and outcomes of youth functioning are explored in the context of positive indicators of mental health (i.e., SWB).

SWB and Academic Achievement and In-School Behavior

According to Erikson (1968), the opportunities adolescents are provided by their families, schools, and communities for nurturing their academic aspirations are essential in promoting adolescents' developmental success. Middle schools in particular have been regarded as one of the most important institutions to assist American youth who, often due to difficult social conditions, are at higher risk for academic failure and low motivation to learn, poor conduct and affiliations with negative peers (Carnegie Council, 1989; Hamburg & Takanishi, 1996). Therefore, institutions responsible for socializing children, such as schools, should monitor students' wellness via constructs that assess the full range of functioning, such as those that evaluate student happiness, as research has demonstrated that happiness provides benefits at the individual, family, and community level, and across different domains of functioning (e.g., social, emotional, academic; Lyubomirsky, King, & Diener, 2005). In the next section, studies that have examined students' SWB in relation to their academic achievement and in-school behavior are discussed.

Concurrent relationships. Life satisfaction has been linked to academic achievement as well as socially desirable behaviors. Youth who report that they are very satisfied with their lives show positive functioning in school-related domains, such as high perceptions of quality of school experiences, more perceived social support from peers and teachers, greater academic achievement, and greater academic self-efficacy (Gilman & Huebner, 2006; Suldo & Huebner, 2006). Additionally, life satisfaction may serve as a protective factor from engaging in risky behavior, such as suicide ideation and substance abuse (Valois, Zullig, Huebner, Drane, 2004; Zullig, Valois, Huebner, Oeltmann, & Drane, 2001). Therefore, experiences of high life satisfaction may be advantageous for youth, who are expected to master tasks involving productivity related to their educational pursuits, which are intended to guide youth towards securing productive and meaningful employment as adults (Berk, 2006).

Regarding students' academic achievement, recent research has supported the notion that the experiences of schooling and wellness are intertwined, as school grades, personal beliefs about learning and academic ability, and students' perception of school climate are correlated with students' life satisfaction (Suldo, Shaffer, & Riley, 2008). A direct indictor of academic success is students' academic engaged time (Shapiro, 2004). A study by Reschly, Huebner, Appleton, and Antaramian (2008) explored a specific component of SWB, affect, and its relation as an antecedent to student engagement among 293 students in grades 7 through 10. Students completed the Positive and Negative Affect Schedule–Children (PANAS-C; Watson, Clark, & Tellegen, 1988), a 27-item scale comprised of two subscales: Positive Affect (PA) and Negative Affect (NA; Laurent et al., 1999). The PA subscale consisted of 12 items on a Likert scale to elicit

information on the frequency of experiencing positive emotions (e.g., proud, energetic) in the school setting. The NA subscale consisted of 15 items also on a Likert scale, measuring the frequency of certain negative emotions (e.g., sad, lonely) in the prior few weeks within the school setting. Participants also completed the Student Engagement Instrument (SEI; Appleton, Christenson, Kim, & Reschly, 2006), a scale that measures two constructs of engagement at school associated with learning: cognitive engagement and psychological engagement. Results indicated that students experience more positive emotions than negative emotions during school. Further, there were significant, positive correlations between PA and subscales on the SEI, ranging from 0.37 to 0.47, whereas NA was significantly inversely associated with engagement, −0.18 to −0.25. Overall, this suggests that students who experience more positive emotions, a component of SWB, are more likely to be engaged, both cognitively and psychologically, on school related tasks.

Life satisfaction is also related to children's beliefs in their capabilities related to school performance. Huebner, Gilman, and Laughlin (1999) examined the relationship between academic competence and youths' life satisfaction. The study included 183 American elementary school students in grades 3 to 5, and 290 American middle school students. Participants completed the SLSS and a measure of self-concept related to school, the Self-Description Questionnaire-II (SDQ-II; Marsh, 1990) for the middle school age students or the Self-Description Questionnaire-I (SDQ-I; Marsh, 1988) for the elementary age students. Huebner and colleagues found that youths' perceived academic competence was positively correlated with global life satisfaction (r = .36 –.37). Suldo and Huebner (2006) also explored the relation between life satisfaction and perceived academic ability via a sample of 698 students from 3 middle and 2 high schools.

Perceived academic ability was assessed by academic subscale of the Self-Efficacy Questionnaire for Children (SEQ-C; Muris, 2001). In the SEQ-C, academic self-efficacy relates to adolescents' perceived capability to manage their own learning behaviors, to master academic material, and to fulfill academic expectations. Findings indicated a moderate correlation (r = .45) between global life satisfaction (measured via the SLSS) and academic self-efficacy. These findings have been replicated with non-American youth. Specifically, a longitudinal study of Chinese students found that self-perceptions of performance in core academic subjects (i.e., Chinese, English, and mathematics) were strongly associated with current life satisfaction and predicted global life satisfaction 7 to 9 months later (Leung, McBride-Chang, & Lai, 2004).

Despite the evidence that higher perceptions of academic competence predict life satisfaction, initial studies examining students' life satisfaction and actual performance (i.e., grades) indicated that these two constructs were unrelated. For example, in a study by Huebner (1991) with 79 Caucasian middle school students, average report card grades for the subjects of math, reading, spelling, science and social studies were unrelated to student scores on the SLSS. Similar results were found comparing life satisfaction of youth who were in a gifted (n = 61) program to match students in the general education program (n = 61; Ash & Huebner, 1998). However, more recent research using larger sample sizes have shown otherwise. Chenge and Furnham (2002) explored the relation between happiness and academic performance with 49 male and 41 female adolescents, ages 16-18, in the United Kingdom. A small, but significant correlation of .29 between a measure of positive affect (measured via the Affectometer; Headey & Wearing, 1983) and school grades and of .25 on the Oxford Happiness Inventory (Argyle, Martin, &

Crossland, 1989) and school grades was found. In a sample of 341 middle school students, Suldo and Shaffer (2008) found that those who scored in the satisfactory range on measures of SWB (above the 30th percentile) had better grades in academic subject areas and scores on standardized achievement tests of reading compared to groups who scored at or below the 30th percentile on measures of SWB. Further, the group that had complete mental health (high SWB and low psychopathology) performed significantly better on a standardized math achievement test compared to students categorized in the vulnerable group (characterized as having low SWB and low scores of psychopathology). Additionally, Kirkcaldy, Furnham, and Siefen (2004) examined archival data from 30 countries to evaluate factors that correlate to happiness internationally. Happiness was evaluated via the World Database of Happiness by Veenhoven (2001) and self-reported student achievement data was gathered via the Programme for International Students Assessment (2001). Those countries whose youth reported the highest levels of happiness also reported the highest levels of academic achievement in the subjects of science, math, and reading literacy. Specifically, the relationship between happiness and reading literacy was the strongest (r = .63), followed by math literacy (r = .59), and finally science literacy (r = .57). In sum, having high SWB is advantageous in youth. In particular, youth with high life satisfaction not only perceive that they are academically competent (Huebner, Gilman, & Laughlin, 1999), but these students with high SWB also typically perform better in academic subject areas (Kirkcaldy, Furnham, & Siefen, 2004; Suldo & Shaffer, 2008).

Life satisfaction may also play a key role in students' abilities to overcome the challenges associated with academic tasks. Daily stresses of school (e.g., tests, grades,

homework, academic and achievement expectations) are cited among the greatest stressors of high school students (Crystal et al., 1994; de Anda et al., 2000; Lohman & Jarvis, 2000). Having high life satisfaction may be advantageous for students as it has demonstrated a mediational role in the relationship between stressful environmental experiences and youth behavior problems (McKnight, Huebner, & Suldo, 2002).

Students with high life satisfaction may also perceive that their academic aspirations are supported by adults and peers. Adolescents in Ireland and America reporting the highest SWB perceived significantly higher levels of social support from significant adults (i.e., parents, teachers; Nevin, Carr, Shevlin, Dooley, & Breaden, 2005; Suldo & Huebner, 2006; Suldo & Shaffer, 2008) as well as more positive attitudes towards their teachers (Gilman & Huebner, 2006). This is gainful, because having healthy interpersonal relationships with peers and adults promotes achievement motivation (Hall-Lande, Eisenberg, Christenson, & Neumark-Sztainer 2007; Nelson & DeBacker, 2008). One study in particular underscored the strong links between life satisfaction and perceived social support with a sample of 698 students in middle and high schools (Suldo & Hueber, 2006). Life satisfaction was assessed via the SLSS and social support was measured using the Child and Adolescent Social Support Scale (CASSS; Malecki & Demaray, 2002). Suldo and Huebner (2006) found that adolescents reporting extremely high life satisfaction (i.e., in the top 10% of life satisfaction scores relative to peers) reported the highest levels of social support from parents, a close friend, classmates, and particularly, teachers, compared to peers reporting average and low levels of life satisfaction.

Research also supports concurrent relationships between SWB in youth and their in-school behavior. A common problem in schools is bullying and victimization. In fact, the National center for Educational Statistics reported that during the 2005-2006 school year, 24% of public schools indicated bullying as a daily or weekly problem (Dinkes, Kemp, & Baum, 2009). The problem is particularly prevalent in middle schools (Dinkes, Kemp, & Baum, 2009). Student happiness is correlated with their behavior on school grounds, including acts of violence, bullying, and victimization. For example, Martin and Huebner (2007) investigated relationships between peer victimization and SWB (measured via the PANAS and MSLSS) among 571 middle school students. Peer victimization was assessed with the Children's Self Experience Questionnaire-Self Report (CSEQ-SR; Crick & Grotpeter, 1996). The CSEQ-SR assesses the frequency of three types of interactions: overt victimization, relational aggression, and being the recipient of supportive acts by peers. Results indicate that life satisfaction and positive affect were positively related to prosocial acts (r = .49 and r = .41, respectively) and inversely related to reports of overt victimization and relational aggression (r = -.30 and r = -.12, respectively) among participants.

Additional studies have demonstrated concurrent linkages between lower levels of life satisfaction and problem behaviors that affect schooling. In a study with approximately 2,000 Caucasian and African American middle school students, those who reported diminished life satisfaction reported carrying a gun or other weapon or being in a physical fight more frequently than peers with moderate to high reports of life satisfaction (Valois, Paxton, Aullig, & Huebner, 2006). In a sample of 5,414 adolescents attending public high schools in South Carolina, MacDonald, Piquero, Valois, and Zullig

(2005) found similar results. Students who reported higher levels of life satisfaction were significantly less likely to report having carried a weapon in general ($t = –6.17$), or on school property ($t = –5.34$) in the past 30 days on a self-report measure. Further, life satisfaction was also negatively associated with carrying guns ($t = –2.39$) and engaging in physical fights in the prior 12 months ($t = –8.07$). There is very limited research relating life satisfaction and school attendance. Suldo and Shaffer (2008) found that students with high levels of SWB, as well as low psychopathology (i.e., students categorized as having complete mental health) had lower numbers of school absences compared to students categorized as having low SWB and low psychopathology (i.e., students categorized as vulnerable), underscoring the importance of SWB to school attendance.

The studies previously mentioned provide support for the need to foster SWB in youth. SWB is related to higher school achievement and school attendance, as well as serves as a protective factor from engaging in risky behavior. The following section highlights predictive relationships between life satisfaction and academic achievement and in-school behavior in order to further solidify the benefits of a complete mental health model, which considers factors beyond psychopathology, and which may act as a predictor of a child's future school functioning.

Predictive relationships. Research examining predictive links between SWB and developmental outcomes has been largely restricted to adult populations. This lack of data is unfortunate, because as Park (2004) has suggested, there is a need to target protective factors, such as life satisfaction, locus-of-control, and/or hope, in order to promote long-term experiences of wellness among youth across their development. An example of longitudinal research as indicators of positive functioning related to

achievement in youth involves a study of character strengths. Character refers to the facets of one's personality that are typically desired by society and which guide individuals to do the right thing (Park & Peterson, 2008). One study of 190 fifth grade and 131 eighth grade students from one middle school revealed that students who had the character strengths of perseverance, fairness, honesty, hope, gratitude, and perspective had higher end-of-the-year grade point averages, after controlling for IQ scores, compared to students without these character strengths (Park & Peterson, 2006). However, these correlations were small, and results should be interpreted with caution pending replication.

A study by Funk, Huebner, and Gilman (2000), evaluated life satisfaction, a component of SWB, in relation to indicators of school functioning. The study consisted of 99 high school students who participated in the longitudinal study at two time points separated by a year. Results from this study revealed concurrent relationship, but not predictive relationships, between life satisfaction and students' attitudes toward schooling. One study conducted with adults may be pertinent to future academic outcomes predicted by SWB in youth. Lewinsohn, Redner, and Seley (1991) examined a sample of over 2,000 adult participants, and found that adults who report low life satisfaction are at risk for future depression. This link between low life satisfaction and later depression is important, as youth with diagnoses of depression diminished in academic performance in early adulthood (Fergusson & Woodward, 2002). Empirical research examining indicators of wellness (i.e., life satisfaction and SWB) as a predictor of youth academic achievement (e.g., GPA and standardized test scores) and in-school behavior (e.g., disciplinary referrals and attendance) is needed to examine the extent to

which various levels of SWB in youth predict improvements and declines in academic achievement and in-school behavior. No studies have yet examined the comparative predictive validity of SWB and psychopathology in relation to academic outcomes in adolescents.

Conclusions

School-based mental health services should provide children with the resources to thrive within the school building (Baker, 2008). Thriving results when children possess psychological characteristics that lend to durability, competencies that ensure adaptability in adversity, and have access to supportive socializing institutions, such as schools, which allow them to be resilient over potential harmful risk-factors derived from the child's environment (Luthar, Cicchetti, & Becker, 2000). Therefore, those in a position to work with students should focus on factors that allow youth to thrive. Despite a historical foundation of psychological research driven by a focus of psychopathology, new research suggests a need to shift from a psychology driven solely by psychopathology to one that also considers indicators of people's wellness and strengths (Seligman & Csikszentmihalyi, 2000). The dual-factor model of mental health (cf. Greenspoon & Saklofske, 2001; Suldo & Shaffer, 2008) examines positive indicators (i.e., SWB) as well as indicators of psychopathology (i.e., internalizing and externalizing behavior problems) and thus yields a picture of psychological functioning in youth that is more complete. However, indicators of student outcomes predicted by this model have yet to be examined longitudinally. Additionally, despite the fact that education is a highly valued aspect of child development in the United States (Berk, 2006), it has not been until recent decades that outcomes associated with SWB and aspects of child development, such as

school functioning, have been evaluated. The current study thus aimed to address these two gaps in research. First, the study evaluates how membership in one of four mental health groups (i.e., complete mental health, vulnerable, symptomatic but content or troubled) derived from integrated scores of wellness and psychopathology yielded from the dual-factor model (Suldo & Shaffer, 2008) predicts academic achievement and in-school behavior over a one year period. Additionally, this study contributes to the literature by providing more data on the predictive value of SWB on academic achievement and in-school behavior during adolescence. The extent to which internalizing and externalizing symptoms of psychopathology predicts subsequent achievement was also verified.

Chapter 3

Method

The present study assessed the utility of a dual-factor model of mental health (cf. Greenspoon & Saklofske, 2001; Suldo & Schaffer, 2008) in predicting students' subsequent academic achievement and in-school behavior. This chapter provides an overview of the participants in this current study and the process used to select participants for the study. Next, procedures for data collection are delineated, including a review of the measures used in data collection. Last, variables examined in this study and analysis procedures are discussed.

Participants

The dataset analyzed in the current study is part of a larger research project investigating SWB and psychopathology in relation to academic achievement, attitudes towards school, physical health, and social relationships in middle school students (Suldo & Shaffer, 2008). However, data from a second wave of data collection that has not been examined in any prior investigation was also analyzed in the current study. In the spring of 2006 (Time 1 of the current study, data analyzed in Suldo & Shaffer, 2008) participants consisted of 349 students (341 of whom were retained for data analyses) enrolled in sixth through eighth at a large public middle school in the Southeastern United States, as well as the teachers from that school who were familiar with the student participants.

During the 2007-2008 school year, additional data on students enrolled in the

larger study at Time 1 were gathered. Data included information from participants' school records for the 2006-2007 school year (Time 2). Due to promotion of grade eight students to grade nine, as well as the transient nature of the population (i.e., students transferring to multiple schools within the district), the school district's database was used to attain student records from multiple schools at Time 2. Ultimately, usable school records for 300 of the original student participants from the Time 1 data wave were ascertained, as these students remained within the school district during the 2006-2007 school year and had mostly complete school records at Time 2.

Selection of Participants

Student participants. Students who initiated participation at Time 1 were required to be enrolled at the middle school and obtain written parental consent to participate in the longitudinal project. Once these two requirements were met, students were asked to sign a student assent form prior to administration of measures and collection of school record data. At Time 1, participant enrollment was limited to 350 students due to financial constraints. Data on one student was incomplete, and therefore not included in the analysis. Additionally, eight students identified as multivariate outliers during determination of student mental health groups were not included. Demographic characteristics of the 341 student participants at Time 1 are included in Table 1.

In the current study, student participants from Time 1 who (a) remained within the school district and (b) had data regarding course grades, standardized test scores, attendance records, and/or office disciplinary referrals (ODRs) were included in the Time 2 wave of data collection. Considering these inclusion criteria, 300 participants remained

in the study at Time 2, or approximately 88% of those in the original data set. Demographic characteristics of Time 2 student participants are provided in Table 1.

A series of chi-square and *t*-tests between the student characteristics of the longitudinal sample and the participants lost to attrition was conducted to test for potential effects of sample attrition. First, chi-square tests compared demographic characteristics of Wave 1 subjects (N = 341) to those subjects remaining at Wave 2 (N = 300). With an alpha level of .05, none of the following effects of demographics were statistically significant: gender (χ^2 (1, N = 641) = 0.79, p = .37), grade (χ^2 (1, N = 641) = 0.06, p = .97), ethnicity (χ^2 (1, N = 641) = .12, p = 1.00), SES (χ^2 (1, N = 641) = 0.04, p = .84), family structure (χ^2 (1, N = 641) = 0.06, p = .81), mental health group (χ^2 (5, N = 641) = .35, p = .95). These results indicate that students who withdrew from the longitudinal sample were no more likely to be of a particular grade, gender, socioeconomic status, parental marital status, race, or mental health group, than those students who remained in the study at Time 1 and Time 2. Next, data were analyzed using independent-samples *t* tests. These analyses indicated that participants who remained in the study across time (N = 300) and students lost to attrition (N = 41) did not differ on any mental health or academic function variable at Time 1, including: global life satisfaction (t = -.35, p = .73), positive affect (t = -.05, p =.96), negative affect (t = .73, p = .47), internalizing psychopathology (t = -.65, p = .52), externalizing psychopathology (t = -.27, p = .79), GPA (t = 1.44, p = .16), FCAT-math (t = .14, p = .89), FCAT-reading (t = -.87, p = .38), absences (t = -1.24, p = .21), and referrals (t = .32, p = .75). These analyses indicate that students who withdrew from the longitudinal sample were no more

likely to have different levels of mental health functioning, academic achievement, or in-school behavior than students who participated in both time points of the study.

Table 1

Demographic Characteristics of Participants at Time 1 and Time 2

Demographic Variable	Time 1 Total Sample (N = 341) %	Time 2 Total Sample (N = 300) %
Gender		
Male	40.76	37.33
Female	59.24	62.67
Grade		
6	32.84	33.67
7	36.07	36.00
8	31.09	30.33
Ethnicity		
Caucasian	55.43	55.67
African-American	14.08	14.33
Asian	5.28	5.67
Hispanic/Latino	12.61	12.33
Native American	1.47	1.33
Multi-racial	9.68	9.33
Other	1.47	1.33
Socioeconomic status		
Low	24.63	25.33
Average/High	75.37	74.67
Family Structure		
Married	60.41	61.33
Not Currently Married	39.59	38.67
Mental Health Group		
Complete Mental Health	56.89	56.67
Troubled	17.30	17.00
Vulnerable	12.90	14.33
Symptomatic but Content	12.90	12.00

Teacher participants. At Time 1, participation was sought from teachers familiar with one or more student participants. Selected teachers provided written consent to participate and received incentives (i.e., $5 gift certificates) following valid completion of a behavior rating scale for a given student participant. A total of 44 teacher participants were included at Time 1. Further participation from teachers was not solicited at Time 2 of data collection, as teacher data were only required to assess students' mental health status (specifically, externalizing psychopathology) at Time 1.

Procedures

This section reviews the procedures used to construct the archival dataset (Time 1; Suldo & Shaffer, 2008), as well as procedures used to collect additional student information at Time 2 examined in the current study. The procedures used in the archival dataset were gleaned through written documentation elaborating upon the procedures used to produce the data set in the study by Suldo and Shaffer (2008) and will be summarized below.

In November of 2005, approval to conduct the study was obtained from the University of South Florida Institutional Review Board as well as the school district in which the school was located. Consent was obtained from parents via a written parental consent form (see Appendix A) that students were asked to take home, share with their parents, and return to school after acquiring a parent signature. These procedures may have induced unequal gender representation in the sample, such that female students may have been more likely to have brought the consent forms home and/or returned them to school at a higher rate than their male counterparts. In January of 2006, students who had obtained parent permission were asked to check-in at their school's media center during

an elective class period on one of two dates allocated for data collection. In the media center, students gathered in groups of approximately 50-75 students. Before students responded to items within the questionnaire packet, the principal investigator of the study read the student assent form (see Appendix B) aloud to all students in the media center. It was explained to the students that they had the right to withdraw from the study during any point of the data collection process. Following this procedure, students completed the demographic questionnaire, as well as other self-report measures reviewed later within this chapter. The questionnaires contained in the packet were counterbalanced in order to control for potential order effects. Approximately 55-60 minutes were provided to allow students to complete their questionnaire packets. During the administration procedures, the principal investigator, along with graduate student research assistants, attended to all students' questions and monitored students to be certain they were responding independently. After a student completed his or her questionnaire packet, one member from the research team visually scanned each measure in the packet, checking for skipped items or errors in responding. When errors were detected, students were asked to complete the item(s) or correct the item(s) when appropriate.

During the 2007-2008 school year, the author of the current thesis worked with the data clerk of the targeted middle school in which the study by Suldo and Shaffer (2008) was conducted in order to gather additional information on student participants' academic achievement during the 2006-2007 school year. Specifically, this author worked with the data clerk to locate students' respective schools at Time 2 in order to gather information regarding grades earned in classes, attendance records, and office disciplinary referrals. Student records were de-identified by this author. Participants were

assigned an identification number. Grade point averages for each 9-week grading period were computed by hand (i.e., A = 4.0, B = 3.0, C = 2.0, D = 1.0, F = 0), and then entered in a SPSS file. This file was used to compute grade point averages by semester and finally, by year. For example, if a student received three "A"s and three "B"s for a grading period they would be assigned a 3.50 GPA for that grading period. This academic data for Time 2 was then entered into the original SPSS spreadsheet created at Time 1, along with the Time 2 attendance data, ODRs, and FCAT-math and FCAT-reading scores.

Measures

Demographics form. The questionnaire administered at Time 1 contains items regarding age, grade level, gender, socioeconomic status (SES), race/ethnicity, and family structure (e.g., my biological parents are married, my biological parents are divorced; see Appendix C). The form also contained two sample questions in Likert scale form (e.g., I go to the beach) which were similar to the format of subsequent measures in the assessment packet handed out to students at Time 1. The research team used these items to train students how to complete Likert-style questions.

Students' Life Satisfaction Scale (SLSS; Huebner, 1991). The SLSS consists of seven items measuring global life satisfaction (see Appendix D). The questionnaire is designed for children in grades 3 to 12, and was completed by student participants at Time 1. Students were asked to indicate the extent to which they endorsed general statements about their life (e.g., "My life is just right." "I would like to change many things in my life.") on a Likert scale, ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Scaled scores are obtained by reverse-scoring the two items that are negatively

worded, summing the responses, and finally dividing the sum by the number of items to yield an overall score of life satisfaction, such that higher mean scores represent higher levels of life satisfaction.

The SLSS has demonstrated utility with diverse samples of youth, including students with emotional handicaps and students diagnosed with learning disabilities (Huebner & Alderman, 1993) as well as children from diverse ethnic and language backgrounds (Huebner, 1995; Marques, Pais-Ribiero, & Lopez, 2007). The SLSS has demonstrated high internal consistency (coefficient alpha = .82) as well as test-retest reliability in a sample of 202 youth at 1- and 2-week intervals (r = .74 and r = .68; Huebner, 1991). The SLSS has demonstrated moderate stability across a period of four weeks (r = .64; Gilman & Huebner, 1997). In regards to construct validity, moderate convergent validity has been found (Huebner, 1991) between the SLSS and other measures of SWB, including the Happiness and Life Satisfaction subscale of the Piers-Harris (r = .53; Piers, 1984) and one item tapping life satisfaction from the Andrews and Withey Life Satisfaction Scale (r =.62; Andrews & Withey, 1976). Huebner (1991) has determined that the SLSS yields a small, non-significant correlation with a measure of social desirability (r = .05). Evidence of convergent validity has been found by comparing children's SLSS scores and parent ratings of their children's happiness (r = .54; Gilman & Huebner, 1997). Evidence of the SLSS's divergent validity has been provided via significant, negative correlations with measures of depression and loneliness (Huebner & Alderman, 1993).

Positive and Negative Affect Scale for Children (PANAS-C; Laurent, Catanzaro, Joiner, Rudolph, Potter, Lambert, Osborne, & Gathright, 1999). The PANAS-

C was administered at Time 1 and is a 27-item self report scale (see Appendix E). Twelve of the items assess the frequency of positive affect and 15 items assess the frequency of negative affect. This scale measures the degree to which individuals experience positive and negative affect, by rating a list of 27 words that describe feelings and emotions, such as "frightened," "energetic," and "delighted," on a Likert scale, ranging from 1 (*very slightly* or *not at all*) to 5 (*extremely*). Respondents indicate the extent to which they have felt each mood or feeling in the past few weeks.

The PANAS-C was adapted to measure negative and positive affect in children and adolescents from the Positive and Negative Affect Scale, which was designed for adults (PANAS; Watson, Clark, & Tellegen, 1988). Earlier research has demonstrated a negative small correlation (r = -.16) between the positive affect and negative affect subscales of the PANAS-C (Laurent et al., 1999). Internal consistency is high for the positive affect and negative affect subscales (alpha coefficients of .90 and .94, respectively; Laurent et al., 1999). The PANAS-C has demonstrated construct validity via its comparison to constructs which are different, but related (Seligson, Huebner, & Valois, 2005). Specifically, a study by Laurent et al. (1999) confirmed that the subscales have good convergent validity (positive affect, r = -.20) and discriminant validity (negative affect, r = .62) when compared to the Trait Anxiety Scale of the State-Trait Anxiety Inventory for Children (Spielberger, 1973). Similarly, when compared to the Children's Depression Inventory (Kovacs, 1985) the PANAS-C also demonstrates good construct validity (positive affect, r = -.42; negative affect, r = .59; Laurent et al., 1999).

The Youth Self Report Form of the Child Behavior Checklist (YSR; Achenbach & Rescorla, 2001). The YSR was administered to student participants at Time

1. The YSR is used to provide "standardized descriptions" of eight areas of problem behavior in children 11 to 18 years of age, including: anxious/depressed, withdrawn/depressed, somatic complaints, rule-breaking behavior, aggressive behavior, social problems, thought problems, and attention problems. This measure is comprised of 112 items aimed to measure these eight dimensions of psychopathology. Students are asked to consider the degree to which feelings or behaviors are accurate for them currently or in the past six months, responding on a 3-point Likert scale. The scale ranges from 0 (*not true*) to 2 (*very true or often true*). Only data from the following three subscales was analyzed in the current study: (a) anxious/depressed, (b) withdrawn-depressed, and (c) somatic complaints. These three subscales form the internalizing symptoms composite. Due to students' questionable ability to accurately report their own externalizing problems, an index of externalizing symptoms is provided by a different measure, specifically, one completed by a teacher.

The YSR has proved efficacious at discriminating between youth with symptoms of psychopathology and those who have not been referred amongst diverse populations (Achenbach & Rescorla, 2001). Evidence of the YSR's construct validity regarding symptoms of internalizing problems has been demonstrated via correlations with checklists of diagnostic categories of the DSM-IV (r = .37 to .51; Achenbach & Rescorla, 2001) and correlations with subscales of the BASC (r = .38 to .80; Achenbach & Rescorla, 2001). Additionally, the YSR has demonstrated high test-retest reliability at 8-days on the internalizing problems, with coefficient alphas ranging from .67 to .76. This rating scale is not included as an appendix due to copyright restrictions.

Teacher Report Form of the Child Behavior Checklist (TRF; Achenbach & Rescorla, 2001). The TRF was completed at Time 1 of the current study. The TRF is a scale which consists of 113 items that examine the same eight dimensions of psychopathology as the YSR. This measure is completed by teachers and school personnel who are familiar with children and adolescents ages 5 to 18. According to the student's current behavior or behavior over the past two months, teachers indicated their agreement to an item on a Likert scale ranging from 0 to 2, with 0 (*not true*) to 2 (*very true or often true*). In the current study, only items from the TRF that assess externalizing psychopathology (i.e., rule-breaking behavior and aggressive behavior subscales) were analyzed.

Similar to the YSR, the TRF is efficacious at discriminating between children and adolescents referred for psychopathology and those who were not referred. Additionally, the TRF has demonstrated test-retest reliability at 16 days with coefficient alphas ranging from .93 to .95. Finally, the TRF has been compared to the Conners Rating Scale for Teachers-Revised (Conners, 1997) to yield high convergent validity (.81; Achenbach & Rescorla, 2001). This rating scale is not included as an appendix due to copyright restrictions.

Indicators of Academic Achievement and In-School Behavior

Grade point average (GPA). Cumulative grade point averages were obtained from student school records during the 2005-2006 school year (Time 1) and 2006-2007 school year (Time 2). GPA was calculated by summing numerical values assigned to letter grades earned for academic performance (i.e., A = 4.0, B = 3.0, C= 2.0, D= 1.0, F= 0) and dividing by the total number of courses or credit hours attempted within a given

grading period (i.e., 9-week period or semester). For example, if a student received three "A"s and three "B"s for a grading period they would be assigned with a 3.50 GPA for that grading period.

Standardized test scores. In Florida, all students in grades 3 to 11 are administered the Florida Comprehensive Assessment Test (FCAT; Florida Department of Education, 2005). The FCAT is a norm-referenced assessment that measures student progress towards statewide benchmarks (i.e., the Sunshine State Standards) in reading, math, writing, and science. Scores are assigned along a five-level grading criteria (1-5), with Level 1 being the lowest and Level 5 the highest. Students must score on or within Levels 3-5 in order to pass. Participants' scores on FCAT-math and FCAT-reading during the 2005-2006 (Time 1) and 2006-2007 (Time 2) school years were analyzed.

Attendance. Time 1 attendance history is operationalized as the total number of school days missed during the first three 9-week grading periods and 4/9 of the 4th 9-week grading period (159 student days; the same time frame during which self-report and teacher-report data collection was conducted). For Time 2, days missed includes the entire 2006-2007 school year (186 student days). Higher scores indicate worse school attendance or in other words, more absences. To account for the discrepancy in total maximum number of days examined during Time 1 (i.e., 3.44 9-week grading periods) and Time 2 (i.e., four 9-week grading periods), students' attendance at each time point is represented by a ratio of the number of days they missed divided by the number of 9-week grading periods in the specific time period. Thus, if a student missed 10 days of school during Time 1 and 10 days of school during Time 2, the student's absences scores in the current study would be 2.91 (i.e., 10/3.44) for Time 1 and 2.5 (i.e., 10/4) for Time

2. In practical terms, this student would have missed approximately 3 days and two to three days per 9-week grading period during Time 1 and Time 2, respectively.

In-school behavior. In-school behavior is operationalized as the number of office disciplinary referrals (ODRs) a student received in a given school year. Similar to attendance records, disciplinary referrals at Time 1 only refer to those ODRs received during the first three 9-week grading periods and 4/9 of the 4th 9-week grading period (159 student days). For Time 2, the number of ODRs includes the entire 2006-2007 school year (186 student days). A higher frequency of ODRs indicates worse in-school behavior. To account for the discrepancy in time frames during Time 1 and Time 2, students' ODRs are expressed as a ratio of the number of ODRs received in a given 9-week grading period. Thus, if a student received five ODRs during Time 1 and five ODRs during Time 2, the student's ODR scores in the current study would be 1.4535 (i.e., 5/3.44) for Time 1 and 1.25 (i.e., 5/4) for Time 2. In practical terms, this student would have received approximately 1.5 and 1.25 ODRs per 9-week grading period during Time 1 and Time 2, respectively.

Preliminary Analysis: Group Assignments

To answer the research questions of interest to the current study, students were first assigned to mental health groups. Mental health groups assigned in previous work with this database (cf. Suldo & Shaffer, 2008), were retained in order to address questions in the current study. In the study by Suldo and Shaffer (2008), students were assigned to mental health groups based on their composite scores on measures of psychopathology (i.e., externalizing and internalizing symptoms) and on measures of SWB (i.e., life satisfaction, positive and negative affect). Published T-scores provided by

Achenbach and Rescorla (2001) were used to establish cut-points that correspond to "at risk." Specifically, student scores must have been at or above a T-score of 60 on a measure of internalizing symptoms via the YSR (Achenbach & Rescorla, 2001) and/or a measure of externalizing symptoms via the TRF (Achenbach & Rescorla, 2001). In sum, participants who scored at or above the published T-scores on either measure were classified to have "high" psychopathology.

Clinical published norms for SWB have not yet been made available. Therefore, scores for "high" and "low" SWB were developed based upon the distribution of scores yielded during classifying participants' scores of psychopathology. Specifically, a cut-off point that corresponded to the 30th percentile was selected, as it would mathematically allow for participants who had been defined as having high psychopathology to also be categorized as having low SWB. More specifically, if students reported their SWB composite was greater than 30% of their peers in the study at Time 1 (i.e., above the 30th percentile), they were considered to have "high" SWB. Conversely, if students reported SWB scores that were less than or equal to 30% of their peers (i.e., below the 30th percentile) they were considered to have "low" SWB. Using these established decision points for SWB and psychopathology, at Time 1, 57% of the sample had "complete mental health" (i.e., high SWB and low psychopathology), 13% were "vulnerable" (low SWB and low psychopathology), 13% were "symptomatic but content" (high SWB and high psychopathology), and 17% were "troubled" (low SWB and high psychopathology). The mental health group to which a given participant was assigned at Time 1 (cf. Suldo & Shaffer, 2008), has been retained in the current study in order to determine the

relationship between mental health group at Time 1 and educational functioning at Time 2.

Overview of Data Analysis Plan

The relation of SWB and psychopathology to subsequent achievement and in-school behavior. In order to address the first two research questions, if SWB and psychopathology at Time 1 predict students' subsequent achievement and in-school behavior (i.e., GPA, FCAT-math, FCAT- reading, absences, ODRs) at Time 2, two series of multiple regression analyses were conducted five separate times due to the fact that five dependent variables (different indicators of educational achievement) were examined. In each regression, student SES and parental marital status were entered as covariates because they were consistently differentially represented among the four mental health groups during Time 1 (Suldo & Shaffer, 2008). Therefore, these covariates were entered in all analyses to control for the potential influences of these demographic variables on the outcomes of interest.

To determine if SWB scores at Time 1 predict student achievement and in-school behavior (i.e., GPA, FCAT-math scores, FCAT reading scores, absences, and ODRs) at Time 2, regressions were conducted in which SWB at Time 1 was regressed on a specific educational outcome variable. A composite SWB variable was created from the measures of global life satisfaction (SLSS) and positive and negative affect (PANAS-C). Educational achievement and in-school behavior at Time 1 was controlled for statistically by entering it prior to Time 1 SWB in all equations. Alpha has been set at .05 to determine statistical significance for a given analysis.

Similarly, a series of five separate regression equations were conducted to determine the extent to which psychopathology scores at Time 1 predict each indicator of student achievement and in-school behavior (i.e., GPA, FCAT-math scores, FCAT reading scores, absences, and ODRs) at Time 2. Psychopathology is represented by participants' number of teacher-reported externalizing and student-reported internalizing symptoms on the Achenbach System of Empirically Based Assessment (Achenbach & Rescorla, 2001). Student demographic characteristics, educational achievement and in-school behavior at Time 1, and students' initial (i.e., Time 1) school functioning on the variable of interest were again controlled for statistically by entering the variables first in all five regression equations.

Group membership and outcomes. To determine if membership in one of the four subgroups of mental health (i.e., complete mental health, vulnerable, symptomatic but content, or troubled) at Time 1 is related to changes in achievement and in-school behavior between Time 1 and Time 2 and related to subsequent achievement and in-school behavior (at Time 2), after controlling for between-group differences in SES and parental marital status, a series of mixed model analyses of covariance (ANCOVA), repeated-measure design were conducted due to the fact that five dependent variables (different indicators of educational achievement) were examined. Specifically, mental health group membership at Time 1 was used as a between-subjects factor and time of assessment of academic achievement was used as the level of repeated measures factor. Potential covariates were controlled for (e.g., SES, parental marital status) when determining if mental health groups differ on change in school functioning outcomes (i.e., GPA, FCAT, attendance, ODRs). Additionally, pairwise follow-up tests were

employed to determine how mental groups differed from one another on achievement and in-school behavior at Time 2.

Limitations and Delimitations

Several factors that may compromise the validity of the study will be reviewed in this section. First, it should be noted that both waves of the data used were gleaned from archival data sets. This factor is a major delimitation of the study, as the author of the current manuscript was not able to control the content of questionnaires used (which determined the categorization of the students in mental health groups) during Time 1, nor the procedures that were involved during data collection at Time 1. Nonetheless, written documents completed by the research team who collected the archival data set provide evidence that appropriate steps were taken to prevent threats to the validity of the data during collection. For example, researchers monitored student completion of the questionnaire packets such that participants were able to ask questions and receive standardized answers from researchers regarding the measures. To ensure the safety and well-being of participants, members of the research team were available if student participants asked about withdrawing from the study and/or if students looked as if they were upset (e.g., tearful, angry). Situations such as these were not reported. Students were allowed privacy while completing forms, and were seated in such a way as to prevent fellow participants from being able to view their responses. Additionally, researchers checked student responses to ensure that measures were completed appropriately. Measures included in the questionnaire packets were counterbalanced, which controlled for order effects. Teacher participants who were asked to complete rating scales regarding student participants' behavior were provided explicit instructions and also

given contact information for a member of the research team who would be available to answer teacher questions and concerns. In sum, no adverse events which may have compromised the validity of the study co-occurred when administering measures to teachers or students during the 2006 wave of data collection.

Additional delimitations must be addressed regarding the second wave of data collection. Of note is the attrition of 12% of the original sample. Additionally, during the time between Time 1 and Time 2, it is possible that participants' levels of SWB and psychopathology may have changed, which may have impacted their academic achievement and in-school behavior. Although the utility of this study is to determine if mental health status as categorized by the dual-factor model is able to predict academic achievement over a one year period, factors that may have impacted student mental health during that period (i.e., trauma, provision of mental health services) are unknown and may confound results.

Ecological validity, also referred to as ecological transferability, is the ability of the researcher to generalize the results of a study across settings (Tashakkori & Teddlie, 2003). Violations to ecological validity include the tendency of the researcher to draw erroneous conclusions to populations with different settings than the population under study. Although students currently reside in different schools, participants used in this study were selected from one middle school in one school district. Therefore, population and ecological transferability of the research has been minimized (Tashakkori & Teddlie, 2003). Along these lines, the middle school from which participants were originally recruited from in this study is located within a middle- to high-SES community; therefore generalizations of results to lower SES areas are made cautiously. Generalizations of

results to rural communities are also considered since the middle school is located in an urban district. Finally, the majority of students in the current study are Caucasian, therefore extending the findings from the current study to more diverse populations should be done cautiously. At the onset of the study, a convenience sampling method was employed; therefore students who agreed to participate in the research study may differ from students who declined to participate. These unique characteristics of the sample population may in turn limit the extent to which conclusions drawn from this study can be applied to other populations as well as the school population from which it was drawn.

Chapter 4

Results

This chapter provides the results of the analyses conducted to address the research questions of interest in the current study. First, correlations among variables are provided to illustrate the relationships between mental health (i.e., subjective well-being, psychopathology, and mental health group membership), academic achievement, and in-school behavior among adolescents. Next, results from regression analyses conducted to determine if SWB and psychopathology at Time 1 predict students' subsequent achievement and in-school behavior (i.e., GPA, FCAT-math scores, FCAT reading scores, absences, and ODRs) at Time 2 are summarized. Then, results of five mixed model ANCOVAs conducted to determine if membership in one of the four subgroups of mental health (i.e., complete mental health, vulnerable, symptomatic but content, or troubled) at Time 1 is related to subsequent academic achievement and in-school behavior (at Time 2) are presented.

Data Screening

During data entry for the original research study that yielded the Time 1dataset analyzed in the current study, data were checked for errors and accuracy (Suldo & Schaffer, 2008). For the current study, Time 2 GPA was manually computed from school records (specifically, letter grades earned in each class per 9-week grading period were assigned numeric values by the author of the current study) furnished by the school's data clerk. The GPA values for each 9-week grading period were then entered into the

original SPSS spreadsheet created at Time 1, along with the Time 2 attendance data, office disciplinary referrals, and FCAT-math and FCAT-reading scores. Time 2 data and data from Time 1 were screened using Statistical Analysis Software (SAS) to detect the presence of either univariate and/or multivariate outliers. Univariate outliers were defined as participants scoring more than 4 standard deviations from the group mean on any variable of interest (i.e., SWB, internalizing problems, externalizing problems, GPA, FCAT-reading, FCAT-math, absences, office disciplinary referrals). Out of 300 student participants, ten were identified as being extreme univariate outliers, defined by having a standard score of 4 or greater on a Time 2 outcome of achievement or in-school behavior. Another 9 participants (out of 290), were identified as extreme univariate outliers, defined by having a standard score of 4 or greater on a Time 1 achievement or in-school behavior outcome.

However, participants found to be univariate outliers on Time 1 and Time 2 variables were retained in the dataset due to the nature of this study. Specifically, youth with extreme levels of psychopathology and/or SWB were anticipated to have substantially worse or better academic or in-school behavior than their peers. As a follow-up to these univariate methods Cook's D values were used. The Cook's D value for each participant is the measurement of the parameter estimate change in analysis with that participant compared with the estimate without that participant. A larger value indicates that the participant is more different from the remaining participants. All Cook D's values were <1.0 and therefore retained (Stevens, 2009). Thus, the dataset retained for all subsequent analyses consisted of 300 participants; no univariate outliers were removed.

Scale Reliability

Prior to further analyses, all scales utilized within the study (i.e., SLSS, PANAS-C, YSR internalizing composite, TRF externalizing composite) were analyzed to determine the internal consistency of each within the sample of 300 students. As previously mentioned SWB is comprised of three separate, but inter-related constructs (i.e., life satisfaction, positive affect, and negative affect). Internal consistency (coefficient alpha) for the 7-item SLSS was .90. Coefficient alpha values for the 12- and 15-item subscales of the PANAS-C were .87 and .94 for positive and negative affect, respectively. The internal consistency of the 31-item YSR internalizing composite was .89. Lastly, the 32-item TRF externalizing composite yielded a coefficient alpha of .89.

Descriptive Analyses

Descriptive statistics for all variables of interest in the data set are presented in Table 2. As shown in Table 2, Students' GPAs in the current sample declined from Time 1 (M = 3.48) to Time 2 (M = 3.16). This declining trend was observed across all four mental health groups and is commensurate with prior research which explores the effect of transitions (i.e., from middle to high school) among youth (Benner & Graham, 2009; Isakson & Jarvis, 1999). Of note, regarding the mean rate of student absences by participants, the numbers obtained (i.e., 1.35 days missed per 9-week grading period at Time 1 and 1.70 absences per grading period at Time 2) are similar to the school-wide attendance data for that school during a recent school year. Specifically, during the 2007 – 2008 school years, students at the school that participated in the current study missed an average of 2 days during a 9-week grading period (Florida Department of Education's Bureau of School Improvement, 2010)

Table 2

Means, Standard Deviations, Ranges, Skew, and Kurtosis of Raw/Non-Transformed Variables

Variable	*N*	*M*	*SD*	Range	Skewness	Kurtosis
Predictor						
T1 SWB	300	-0.02	2.36	-8.3 - 4.0	-.91	.68
T1 Internalizing	300	11.17	8.19	0 - 46.0	1.10	1.21
T1 Externalizing	300	2.14	4.31	0 - 26.0	2.78	8.28
T1 GPA	298	3.48	0.61	1.1 - 4.0	-1.32	1.09
T1 FCAT-Reading	296	3.34	1.15	1.0 - 5.0	-0.39	-0.66
T1 FCAT-Math	296	3.63	1.23	1.0 - 5.0	-0.51	-0.74
T1 Absences	298	1.35	1.42	0 - 9.9	1.97	6.13
T1 ODRs	298	0.10	0.28	0 - 1.7	3.57	13.74
Outcome						
T2 GPA	299	3.16	0.82	0.6 - 4.0	-0.98	0.30
T2 FCAT-Reading	298	3.21	1.17	1.0 - 5.0	-0.22	-0.78
T2 FCAT-Math	298	3.69	1.16	1.0 - 5.0	-0.51	-0.63
T2 Absences	300	1.70	2.36	0 - 20.8	4.26	26.54
T2 ODRs	300	0.19	0.51	0 - 4.25	3.86	18.72

Note. Higher scores reflect increased levels of the construct indicated by the variable name.

To assess univariate normality, skew and kurtosis of each of the 13 variables were calculated. At Time 1, three variables had a normal distribution (skewness and kurtosis between -1.0 and +1.0) and five variables demonstrated values of skew and kurtosis that

were outside normal limits. These five variables include: GPA (skew = -1.32, kurtosis = 1.09), absences (skew = 1.97, kurtosis = 6.13), ODRs (skew = 3.57, kurtosis = 13.74), internalizing problems (skew= 1.10, kurtosis= 1.28), and externalizing problems (skew = 2.78, kurtosis = 8.28). Obtained values for three of five variables at Time 2 were between -1.0 and +1.0, demonstrating a normal distribution of scores on each of these target variables. Two variables with abnormal distributions included absences (skew = 4.26, kurtosis = 26.54) and ODRs (skew = 3.86, kurtosis = 18.74).

The seven Time 1 and Time 2 variables that did not meet criteria for normal distribution were then transformed, using procedures recommended in Tabachnick and Fiddell (2001). Four of these transformed variables evidenced distributions that approximated normal distributions (i.e., skew and kurtosis values near the range of -1 to +1). These four variables included: internalizing psychopathology (transformed by taking the square root of the raw variable; skew = .28, kurtosis = -.28), externalizing psychopathology (transformed by taking the logarithm of the raw variable; skew = 1.25, kurtosis= .34), Time 1 GPA (transformed by taking the square root of the raw variable; skew = 1.02, kurtosis = .14), and Time 1 absences (transformed by taking the square root of the raw variable; skew = 1.08, kurtosis = 1.31). After transformation (i.e., transformed by taking the inverse of the Time 1 ODRs variable, square root of the Time 2 absences variable, and inverse of the Time 2 ODRs variable, respectively), the distributions of the remaining three variables (i.e., Time 1 ODRs, Time 2 absences, and Time 2 ODRs) improved, but were still problematic (i.e., yielded values for skewness between 2 and 3, and kurtosis between 3 and 7).

To determine the extent to which employing the transformed versions of the variables would affect the study results, analyses of interest (i.e., correlational analyses to evaluate relationships between variables, multiple regression analyses to determine the extent to which SWB and psychopathology predicted students' school functioning, and mixed model ANCOVAs to evaluate changes in students' school functioning as a function of mental health group membership) were conducted twice (first employing the raw/original versions of all variables, and second using the transformed versions of the seven problematic variables). Results from correlational analyses revealed that the pattern and magnitude of almost all relationships remained the same except for two relationships. Specifically, when the transformed version of Time 2 absences was used, the absolute value of the correlation between SWB and Time 2 absences equaled .14 (vs. 11, as reported in Table 3), and the probability of the relationship changed from a $p = .06$ to $p = .02$. Similarly, when the transformed version of Time 2 ODRs was utilized, the absolute value of the correlation between SWB and Time 2 ODRs equaled .16 (vs. 11, as reported in Table 3), and the probability of the relationship changed from $p = .06$ to $p = .01$. Regarding results of repeated regression analyses that employed original/raw and then transformed variables, nine out of the ten regression analyses yielded the same results with respect to pattern, magnitude, and reliability of relationships between indices of mental health and subsequent academic functioning. The one exception involved the regression that explored the extent to which externalizing psychopathology at Time 1 predicts students' performance on FCAT-math at Time 2; when transformed variables were employed, externalizing as a predictor of Time 2 FCAT-math strengthened to just beyond the threshold needed to be considered statistically significant (ß = -.07, $p = .04$,

vs. ß = -.04, p = .19, as reported in Table 6). Finally, primary results of the five mixed model ANCOVAs (i.e., significance levels of group x time interactions) were the same whether transformed or non-transformed variables were employed in the analyses. Because relationships between mental health indicators and academic outcomes were similar in the vast majority of exploratory analyses, results of analyses conducted with the raw/original/non-transformed versions of all variables are reported for all subsequent analyses in the current study.

Correlational Analyses

To determine the relationships between predictor and outcome variables within the sample of students, Pearson product-moment correlation coefficients were calculated between all variables. Correlations among all continuous variables included in analyses are presented in Table 3. An alpha level of .05 was used to determine statistical significance. As expected, SWB was negatively correlated with internalizing problems and externalizing problems (r = -.68, p < .05, r = -.13, p < .05, respectively). Of particular interest are longitudinal relationships between Time 1 mental health indicators and Time 2 academic achievement and in-school behavior indicators. SWB was correlated in a positive direction with the following Time 2 academic functioning variables: GPA (r =.30, p < .05), FCAT-reading (r =.23, p < .05), and FCAT-math (r =.24, p < .05). These results indicate that there is a positive correlation between SWB and academic achievement, whereas no relationships between SWB and indicators of later in-school behavior emerged. Internalizing problems were significantly, negatively associated with GPA (r = -.16, p < .05) and FCAT-math (r = -.17, p < .05), but not FCAT-reading. Internalizing problems were also positively associated with absences (r = .15, p < .05),

but did not demonstrate a significant relationship with ODRs. Externalizing problems were also significantly, negatively associated with GPA (r = -.49, p < .05), FCAT-reading (r = -.27, p < .05) and FCAT-math (r = -.29, p < .05), as well as positively associated with absences (r = .24, p < .05), and ODRs (r = .46, p < .05). In sum, initial psychopathology (internalizing and externalizing) was consistently, inversely associated with two of the three indicators of academic functioning (i.e., GPA and FCAT-math) and externalizing problems in the sample were related to being absent from school and receiving ODRs, in addition to FCAT-Reading.

Regarding longitudinal relationships between indicators of academic functioning, student GPA at Time 1 was positively correlated with the following Time 2 variables: GPA (r = .67, p < .05), FCAT-reading (r = .51, p < .05), and FCAT-math (r = .58, p < .05), as well as inversely related to absences (r = -.32, p < .05) and ODRs (r = -.45, p < .05) at Time 2. FCAT-math at Time 1 was positively associated with the following Time 2 variables: GPA (r = .60, p < .05), FCAT-Reading (r = .72, p < .05), and FCAT-math (r = .86, p < .05), and inversely associated with absences (r = -.26, p < .05) and ODRs (r = -.24, p < .05) at Time 2. Absences at Time 1 were negatively associated with the following Time 2 variables: GPA (r = -.31, p < .05), FCAT-reading (r = -.20, p < .05), FCAT-math (r = -.19, p < .05), as well as positively associated with absences (r = .54, p < .05) and ODRs (r = .21, p < .05) at Time 2. Finally, ODRs at Time 1 were negatively associated with the following Time 2 variables: GPA (r = -.41, p < .05), FCAT-reading (r = -.35, p < .05), and FCAT-math (r = -.35, p < .05), and positively associated with absences (r = .20, p < .05) and ODRs (r = .50, p < .05) at Time 2. In conclusion, all school functioning variables at Time 1 predicted all indicators of school functioning at Time 2.

Table 3

Correlations between Predictor and Outcome Variables (*N* = 300)

	Variables							
	Time 1 Variables			Time 1 Variables Below the Diagonal Time 2 Variables Above and On the Diagonal				
Time 1 Variables	1. SWB	2. Int.	3. Ext.	4. GPA	5. Read	6. Math	7. Abs.	8. ODRs
1. SWB	--	--	--	.30*	.23*	.24*	-.11	-.11
2. Internalizing Problems	-.68*	--	--	-.16*	-.09	-.16*	.15*	.04
3. Externalizing Problems	-.13*	.02	--	-.49*	-.27*	-.29*	.24*	.46*
4. GPA	.24*	-.13	-.38*	**.67***	.51*	.58*	-.32*	-.45*
5. FCAT-Reading	.27*	-.14	-.30*	.53*	**.79***	.73*	-.20*	-.28*
6. FCAT- Math	.25*	-.16*	-.28*	.61*	.76*	**.86***	-.26*	-.24*
7. Absences	-.09	.08	.13*	-.33*	-.16*	-.20*	**.54***	.21*
8. ODRs	-.08	-.02	.53*	-.43*	-.36*	-.33*	.13*	**.50***

Note. Values on the diagonal and in bold are correlations between the variables measuring the same construct at Time 1 and Time 2. Values below the diagonal are intercorrelations among Time 1 variables, and values above the diagonal represent relationships between the same variables at two different time points.

*$p < .05$

Regression Analyses

To determine the extent to which SWB and psychopathology were predictive of students' subsequent achievement (i.e., GPA, FCAT-math, FCAT-reading) and in-school behavior (i.e., absences and ODRs), ten multiple regression analyses were conducted. Each of the five outcomes of interest were predicted using control variables and SWB, and then each of the five outcomes were predicted using control variable and psychopathology. An alpha level of .05 was used to determine statistical significance. Beta weights (standardized multiple regression coefficients) and uniqueness indices were subsequently reviewed to assess the relative importance of the predictor variables and covariates in the prediction of the five school functioning variables at Time 2. The uniqueness index for a given predictor is the percentage of variance in the criterion accounted for by the predictor, beyond the variance accounted from by the other predictor variables.

Five regression equations were computed for estimating the effects of SWB on subsequent achievement and in-school behavior. Beta weights and uniqueness indices are presented in Tables 4 and 5. Time 1 GPA, SES, parent marital status, and SWB accounted for 47% of the variance in GPA at Time 2, $F(4, 292) = 66.38$, $p < .0001$, adjusted $R^2 = .47$. A notable finding from this analysis is that SWB accounted for 1% of the unique variance in GPA at Time 2. Specifically, students with higher SWB at Time 1 were more likely to increase their GPA over the next year. Time 1 FCAT-math, SES, parent marital status, and SWB accounted for 75% of the variance in FCAT-math at Time 2, $F(4, 290) = 217.05$, $p < .0001$, adjusted $R^2 = .75$. SWB was not a significant predictor of Time 2 FCAT-math after the influence of the other variables in the model was

accounted for. Similarly, Time 1 FCAT-reading, SES, parent marital status, and SWB accounted for 64% of the variance in FCAT-reading at Time 2, $F(4, 289) = 130.83$, $p < .0001$, adjusted $R^2 = .64$, but SWB was not a significant predictor of Time 2 FCAT-reading after the influence of the additional variables in the model was accounted for. Time 1 absences, SES, parent marital status, and SWB accounted for 30% of the variance in absences at Time 2, $F(4, 293) = 32.34$, $p < .0001$, adjusted $R^2 = .30$. SWB was not a significant predictor of Time 2 absences after the influence of the other variables in the model was accounted for. Time 1 ODRs, SES, parent marital status, and SWB accounted for 24% of the variance in ODRs at Time 2, $F(4, 293) = 24.75$, $p < .0001$, adjusted $R^2 = .24$. SWB was not a significant predictor of Time 2 ODRs after the influence of the other variables in the model was accounted for.

Table 4

Student Academic Achievement Predicted by Initial SWB and Previous School Functioning

		Parameter Estimates			Uniqueness Indices	
Outcomes	R^2	*B*	*SE B*	ß	*sr*²	*t*
T2 GPA	.47					
1. T1 SES		.05	.09	.03	.00	.60
2. T1 Married		-.18	.08	-.11	.01	-2.27*
3. TI GPA		.78	.06	.59	.26	12.14***
4. T1 SWB		.04	.02	.12	.01	2.75**
T2 FCAT-math	.75					
1. T1 SES		.08	.09	.03	.00	.87
2. T1 Married		-.12	.08	-.05	.00	-1.51
3. T1 FCAT-math		.79	.03	.83	.52	24.46***
4. T1 SWB		.01	.02	.02	.00	0.59
T2 FCAT-reading	.64					
1. T1 SES		.20	.11	.08	.00	1.86
2. T1 Married		-.22	.09	-.09	.01	-2.34*
3. T1 FCAT-reading		.75	.04	.74	.43	18.60***
4. T1 SWB		-.01	.02	-.02	.00	-.41

Note. *sr*² = squared semipartial correlation
*$p < .05$, **$p < .01$, ***$p < .0001$

Table 5

Student In-School Behavior Predicted by Initial SWB and Previous School Functioning

		Parameter Estimates			Uniqueness Indices	
Outcomes	R^2	*B*	*SE B*	ß	sr^2	*t*
T2 Absences	.30					
1. T1 SES		-.32	.26	-.07	.00	-1.21
2. T1 Married		.25	.24	.06	.00	1.04
3. T1 Absences		.78	.07	.52	.26	10.49***
4. T1 SWB		-.04	.05	-.04	.00	-.85
T2 ODRs	.24					
1. T1 SES		-.01	.07	.00	.00	-.08
2. T1 Married		.05	.06	.05	.00	.91
3. T1 ODRs		.85	.09	.48	.21	8.99***
4. T1 SWB		-.01	.01	-.06	.00	-1.13

Note. sr^2 = squared semipartial correlation
*$p < .05$, **$p < .01$, ***$p < .0001$

Similarly, five separate regression equations were computed for estimating the effects of psychopathology on subsequent achievement and in-school behavior. Beta weights and uniqueness indices are presented in Tables 6 and 7. Time 1 GPA, SES, parent marital status, internalizing problems and externalizing problems accounted for 52% of the variance in GPA at Time 2, $F(5, 291) = 64.06$, $p < .0001$, adjusted $R^2 = .52$. Externalizing problems uniquely accounted for 6% of the variance in GPA at Time 2. Time 1 FCAT-math, SES, parent marital status, internalizing problems, and externalizing problems accounted for 75% of the variance in FCAT-math at Time 2, $F(5, 289) =$

174.65, p <.0001, adjusted R^2 = .75. Time 1 FCAT-reading, SES, parent marital status, internalizing problems, and externalizing problems accounted for 64% of the variance in FCAT-reading at Time 2, $F(5, 288) = 105.13$, p <.0001, adjusted R^2 = .64. Notably, neither internalizing nor externalizing problems contributed to the variance in FCAT scores. Time 1 absences, SES, marital status, internalizing problems, and externalizing problems accounted for 32% of the variance in absences at Time 2, $F(5, 292) = 29.58$, p <.0001, adjusted R^2 = .32. Internalizing problems uniquely accounted for 1% and externalizing problems accounted for 2% of the variance in absences at Time 2. Time 1 ODRs, SES, parent marital status, internalizing problems, and externalizing problems accounted for 29% of the unique variance in ODRs at Time 2, $F(5, 292) = 25.36$, p <.0001, adjusted R^2 = .29. Externalizing problems at Time1 uniquely accounted for 5% of the variance in ODRs at Time 2. Overall, these analyses indicate that students with more symptoms of externalizing psychopathology at Time 1 were more likely to experience decreases in GPAs, as well as increases in ODRs, the following school year. Additionally, higher initial levels of internalizing and externalizing problems accounted for significant increases in school absences at Time 2, even after initial absences were accounted for statistically.

Table 6

Student Academic Achievement Predicted by Initial Psychopathology and Previous School Functioning

		Parameter Estimates			Uniqueness Indices	
Outcomes and Predictors	R^2	B	*SE B*	ß	sr^2	*t*
T2 GPA	.52					
1. T1 SES		.01	.09	.01	.00	.12
2. T1 Married		-.15	.08	-.09	.01	-1.95
3. T1 GPA		.69	.06	.52	.20	11.05***
4. T1 Internalizing		-.01	.00	-.06	.00	-1.37
5. T1 Externalizing		-.05	.01	-.27	.06	-6.02***
T2 FCAT-math	.75					
1. T1 SES		.07	.09	.03	.00	.74
2. T1 Married		-.10	.08	-.04	.00	-1.26
3. FCAT-math		.78	.03	.82	.50	24.22***
4. T1 Internalizing		.00	.00	-.03	.00	-.88
5. T1 Externalizing		-.01	.01	-.04	.00	-1.31
T2 FCAT-reading	.64					
1. T1 SES		.19	.11	.07	.00	1.72
2. T1 Married		-.22	.10	-.09	.01	-2.30*
3. T1 FCAT-reading		.74	.04	.73	.42	18.52***
4. T1 Internalizing		.01	.01	.03	.00	.93
5. T1 Externalizing		.01	.01	-.03	.00	-.84

Note. sr^2 = squared semipartial correlation
*$p < .05$, **$p < .01$, ***$p < .0001$

Table 7

Student In-School Behavior Predicted by Initial Psychopathology and Previous School Functioning

		Parameter Estimates			Uniqueness Indices	
Outcomes and Predictors	R^2	*B*	*SE B*	ß	sr^2	*t*
T2 Absences	.32					
1. T1 SES		-.18	.26	-.04	.00	-.68
2. T1 Married		.10	.24	.02	.00	.40
3. T1 Absences		.75	.07	.50	.24	10.32***
4. T1 Internalizing		.03	.01	.10	.01	2.13*
5. T1 Externalizing		.08	.02	.16	.02	3.12*
T2 ODRs	.29					
1. T1 SES		.02	.07	.02	.00	.32
2. T1 Married		.03	.06	.03	.00	.46
3. T1 ODRs		.63	.10	.35	.09	5.99***
4. T1 Internalizing		.00	.00	.04	.00	.76
5. T1 Externalizing		.03	.01	.27	.05	4.67***

Note. sr^2 = squared semipartial correlation
*$p < .05$, **$p < .01$, ***$p < .0001$

Student Mental Health Group Membership and Academic Outcomes

Results were analyzed using five mixed model ANCOVAs with repeated measures on one factor in order to determine the extent to which membership in one of the four subgroups of mental health (i.e., complete mental health, vulnerable, symptomatic but content, or troubled) at Time 1 predicted student achievement (i.e.,

GPA, FCAT-math, FCAT-reading) and in-school behavior (i.e., absences, ODRs) at Time 2. In regards to student GPAs, the Mental Health Group x Time interaction was significant, $F(3,291) = 2.93$, $p < .05$, as was the main effect for group $F(3,291) = 8.33$, $p < .05$. This analysis did not reveal a significant effect for time $F(1,291) = .19$, *ns*. Full results are presented in Table 8.

Table 8

ANCOVA Summary Table for Investigating the Relationship of Student Mental Health Group Membership to Subsequent GPA

Source	*df*	*SS*	*MS*	*F*
Between Subjects	296	212.34		
T1 Mental Health Group	3	15.01	5.00	8.33*
T1 SES	1	12.16	12.16	20.25*
T1 Married	1	10.34	10.34	17.22*
Residual between	291	174.83	.60	
Within Subjects	297	52.89		
Time	1	.03	.03	.19
Mental Health Group x Time Interaction	3	1.54	.51	2.93*
T1 SES x Time Interaction	1	.05	.05	.29
T1 Married x Time Interaction	1	.36	.36	2.06
Residual within	291	50.91	.18	
Total	593	265.23		

Note. $N = 300$
*$p < .05$

Adjusted means from Time 1 and Time 2 were used to determine the influence of mental health group on GPA in Figure 1, as well as in each subsequent figure. As shown, the influence of mental health group on GPA appears most influential within the troubled mental health group. Specifically, the slopes of the regression lines for students in the troubled mental health (slope = -.53) were significantly different from youth in the complete mental health (slope = -.25, p <.01) and vulnerable (slope = -.23, p <.05) groups, such that students belonging to the troubled mental health group declined at a significantly faster rate than students in the complete mental health and vulnerable groups across time. Of note, the symptomatic but content group's slope (-.34) was not significantly different from youth with complete mental health, vulnerable youth, or troubled youth.

Figure 1. Changes in students' GPAs over time

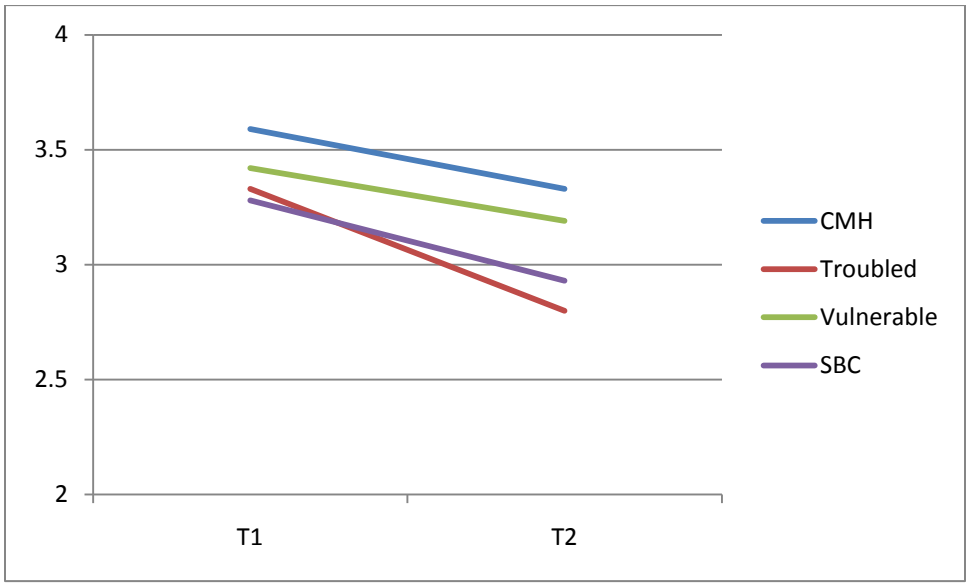

Figure 1. CMH = complete mental health and SBC= symptomatic but content. Adjusted means from Time 1 and Time 2 are plotted.

In addition to graphing group means and comparing groups' slopes in order to interpret significant interaction effects, follow-up tests were employed to determine how mental groups differed from one another on achievement at Time 2. These tests included comparisons of adjusted group means. As illustrated in Table 13, students with complete mental health had higher mean GPA at Time 2 compared to troubled and symptomatic but content youth. Of note, symptomatic but content youth were similar in regards to GPAs to youth in the vulnerable group. Therefore, having average to high SWB, even in the face of the psychopathology, may put students at the same level (at one point in time) as their peers who do not have clinical levels of psychopathology (despite having low SWB). Perhaps most notably, mental health groups with similar levels of psychopathology at Time 1 had similar GPAs at Time 2, regardless of level of SWB.

Examining student performance on the FCAT-math, the Mental Health Group x Time interaction was not significant, $F(3,289) = 0.23$, *ns*, as displayed in Table 9. The effect for time was also not significant. In line with the nature of the design of this study, the main effect for group was significant, $F(3, 289) = 3.78$, $p < .05$.

Table 9

ANCOVA Summary Table for Investigating the Relationship of Student Mental Health Group Membership to Subsequent FCAT-math

Source	*df*	*SS*	*MS*	*F*
Between Subjects	294	679.43		
T1 Mental Health Group	3	22.46	7.49	3.78*
T1 SES	1	63.88	63.88	32.29*
T1 Married	1	21.42	21.42	10.83*
Residual between	289	571.67	1.98	
Within Subjects	295	57.74		
Time	1	.34	.34	1.72
Mental Health Group x Time Interaction	3	.13	.04	0.23
T1 SES x Time Interaction	1	.33	.33	1.69
T1 Married x Time Interaction	1	.01	.01	.06
Residual within	289	56.93	.20	
Total	589	737.17		

Note. $N = 300$
*$p < .05$

As shown in Figure 2, mental health groups did not significantly differ in the slope of the regression lines that depict change across time in FCAT-math scores by group. Specific slopes were as follows: .05 for complete mental health, .06 for troubled, .04 for vulnerable, and .14 for symptomatic but content.

Figure 2. Changes in students' FCAT-math scores over time

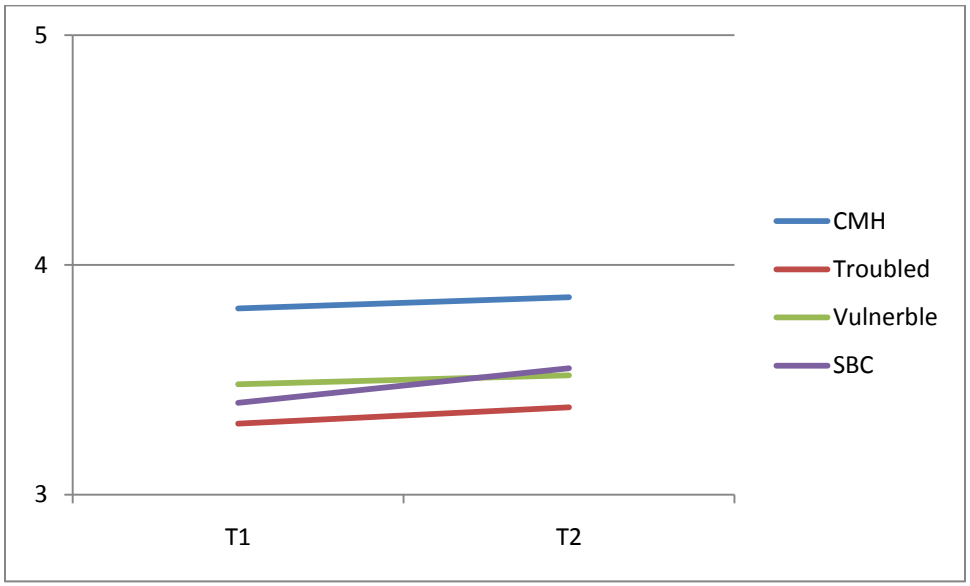

Figure 2. CMH = complete mental health and SBC= symptomatic but content. Adjusted means from Time 1 and Time 2 are plotted.

At Time 2, as depicted in Table 13, student in the complete mental health group performed significantly higher on the FCAT-math assessment than students in the troubled group. Of note, symptomatic but content youth and vulnerable youth were similar to youth in the troubled group, as well as students in the complete mental health group in regards to FCAT-math scores. Therefore, having average to high SWB, despite clinical levels of psychopathology, may again place students at the same level as their peers who do not have clinical levels of psychopathology (despite having low SWB).

Regarding students' FCAT-reading scores, the Mental Health Group x Time interaction was also not significant, $F(3,288) = 1.26$, *ns*, but as anticipated the main effect for group $F(3,288) = 2.71$, $p < .05$ was significant. The main effect of time was not significant. Full results of the ANCOVA are presented in Table 10. Similar to FCAT-math, mental health groups did not significantly differ in the slope of the regression lines,

as depicted in Figure 3. Specific values of slopes are as follows: -.19 for complete mental health, .00 for troubled, .01 for vulnerable, and -.14 for symptomatic but content.

Table 10

ANCOVA Summary Table for Investigating the Relationship of Student Mental Health Group Membership to Subsequent FCAT-reading

Source	*df*	*SS*	*MS*	*F*
Between Subjects	293	624.92		
T1 Mental Health Group	3	15.07	5.02	2.71*
T1 SES	1	61.08	61.08	32.93*
T1 Married	1	14.47	14.47	7.80*
Residual between	288	534.30	1.86	
Within Subjects	294	81.42		
Time	1	.06	.06	.21
Mental Health Group x Time Interaction	3	1.04	.35	1.26
T1 SES x Time Interaction	1	.00	.00	.00
T1 Married x Time Interaction	1	.66	.66	2.37
Residual within	288	79.66	.28	
Total	586	705.84		

Note. $N = 300$
*$p < .05$

Figure 3. Changes in students' FCAT-reading scores over time

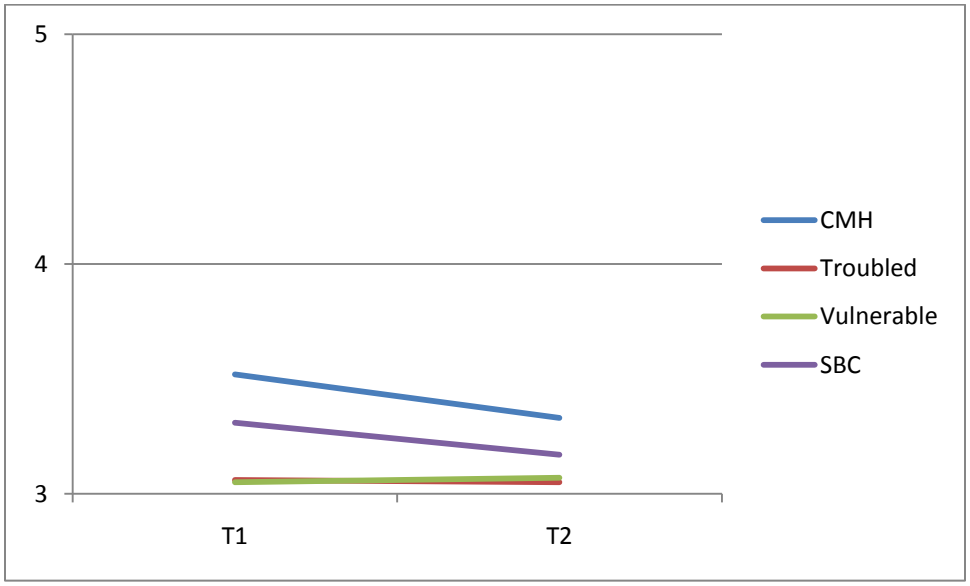

Figure 3. CMH = complete mental health and SBC= symptomatic but content. Adjusted means from Time 1 and Time 2 are plotted.

Regarding measures of students' absences, the results of the ANCOVA are presented in Table 11. The Mental Health Group x Time interaction was significant, $F(3, 292) = 4.44$, $p < .05$ as was the main effect for group, $F(3, 292) = 4.85$, $p < .05$. This analysis did not reveal a significant effect for time $F(1,292) = 1.42$, *ns*.

Table 11

ANCOVA Summary Table for Investigating the Relationship of Student Mental Health Group Membership to Subsequent Absences

Source	*df*	*SS*	*MS*	*F*
Between Subjects	297	1407.87		
T1 Mental Health Group	3	65.16	21.72	4.85*
T1 SES	1	.21	0.21	.05
T1 Married	1	33.82	33.82	7.55*
Residual between	292	1308.68	4.48	
Within Subjects	298	480.79		
Time	1	2.22	2.22	1.42
Mental Health Group x Time Interaction	3	20.78	6.93	4.44*
T1 SES x Time Interaction	1	1.63	1.63	1.04
T1 Married x Time Interaction	1	.17	.17	.11
Residual within	292	455.99	1.56	
Total	595	1888.66		

Note. $N = 300$
*$p < .05$

As shown in Figure 4, the influence of mental health group on absences appears most influential with youth with high psychopathology. Specifically, the slopes of the regression lines for students in the troubled mental health (slope = .68) and symptomatic but content group (slope = 1.06) were significantly different ($p < .05$) from youth in the complete mental health and vulnerable groups (slope = .06 and slope = -.05, respectively). Overall, tests of slope revealed that students with psychopathology at Time 1 accrue more absences over time, regardless of SWB. In other words, the absence of

psychopathology (rather than the presence of SWB) was the primary predictor of intact attendance. Pairwise comparisons were again used to determine how these mental health groups differed from one another in regards to absences at Time 2. As depicted in Table 13, at Time 2, the group with the best attendance had both high SWB and no psychopathology (i.e., complete mental health). Troubled students were not significantly different than vulnerable students. Again, students with similar levels of psychopathology at Time 1 had similar attendance scores at Time 2, regardless of level of SWB.

Figure 4. Changes in students' absences over time

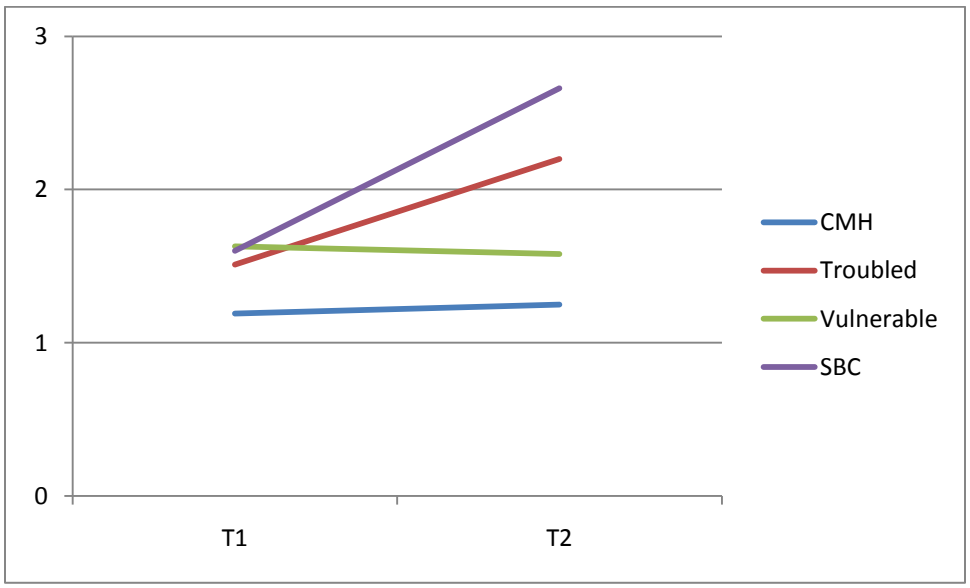

Figure 4. CMH = complete mental health and SBC= symptomatic but content. Adjusted means from Time 1 and Time 2 are plotted.

Finally, when comparing students' ODRs, the main effect for group was significant, $F(3, 292) = 7.17$, $p < .05$, as summarized in Table 12. The Mental Health Group x Time interaction was not significant, $F(3, 292) = 2.60$, *ns*, neither was a significant effect for time $F(1,292) = .04$, *ns*.

Table 12

ANCOVA Summary Table for Investigating the Relationship of Student Mental Health Group Membership to Subsequent ODRs

Source	*df*	*SS*	*MS*	*F*
Between Subjects	297	68.51		
T1 Mental Health Group	3	4.54	1.51	7.17*
T1 SES	1	1.52	1.52	7.22*
T1 Married	1	.78	.78	3.69
Residual between	292	61.67	.21	
Within Subjects	298	29.07		
Time	1	.00	.00	.04
Mental Health Group x Time Interaction	3	.75	.25	2.60
T1 SES x Time Interaction	1	.02	.02	.16
T1 Married x Time Interaction	1	.04	.04	.44
Residual within	292	28.26	.10	
Total	595	97.58		

Note. $N = 300$
*$p < .05$

As shown in Figure 5, although the Mental Health Group x Time interaction effect is not significant, there appears to be a trend regarding number of ODRs received by students in different mental health group. Specifically, when the slope of the regression lines were explored, students in the symptomatic but content group (slope = .26) had a pattern of being different from youth in the complete mental health (slope = .04, $p < .05$) group, but not different from vulnerable or troubled youth. Additionally, as depicted in Table 13, only considering students' Time 2 ODRs, students who were

symptomatic but content incurred significantly more ODRs than any other group at Time 2. Perhaps, having high SWB and symptoms of psychopathology is a risk factor for not attending school regularly one year later, however because the Mental Health Group x Time interaction did not achieve statistical significance (specifically, $p = .0526$), further study is needed in order to make more definitive conclusions on this topic.

Figure 5. Changes in students' ODRs over time

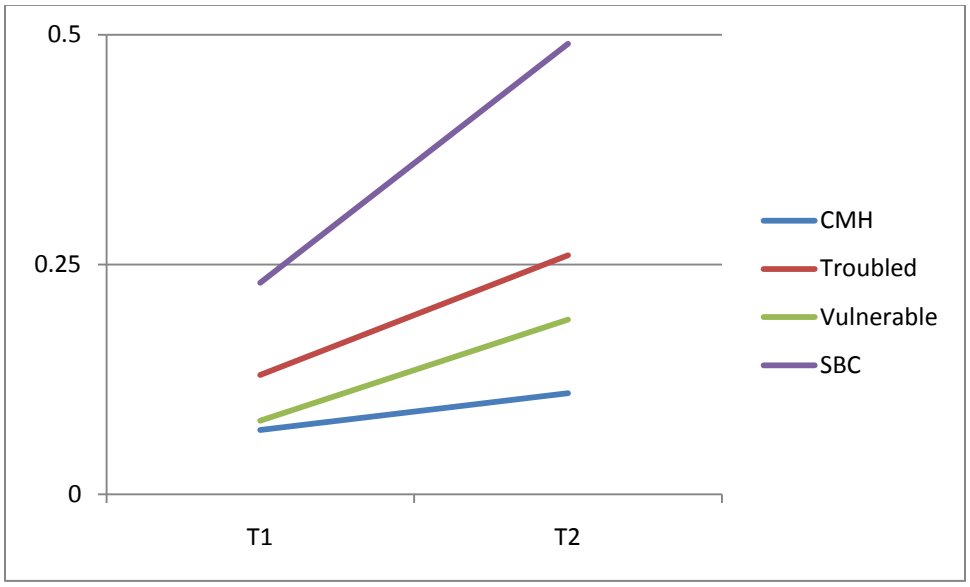

Figure 5. CMH = complete mental health and SBC= symptomatic but content. Adjusted means from Time 1 and Time 2 are plotted.

Table 13

Mean Levels of Academic Achievement and In-School Behavior at Time 2 by Group (N = 300)

	Mental Health Group							
	Complete Mental Health (n = 170)		Vulnerable (n = 43)		Symptomatic but Content (n = 36)		Troubled (n = 51)	
School Functioning	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
GPA	3.40_{a}	.64	$3.12_{a,c}$	.71	$2.86_{b,c}$	1.06	2.63_{b}	.92
	(3.33)		(3.19)		(2.93)		(2.80)	
FCAT-math	3.96_{a}	1.08	$3.42_{a,b}$	.85	$3.46_{a,b}$	1.35	3.14_{b}	1.29
	(3.86)		(3.52)		3.55		(3.38)	
FCAT-reading	3.44_{a}	1.11	2.93_{a}	1.06	3.06_{a}	1.29	2.78_{a}	1.16
	(3.33)		(3.07)		(3.17)		(3.05)	
Absences	1.18_{a}	1.25	$1.65_{a,b}$	1.47	3.13_{c}	4.68	$2.48_{b,c}$	2.80
	(1.25)		(1.58)		(2.66)		(2.20)	
ODRs	0.09_{a}	.29	0.21_{a}	.40	0.51_{b}	.92	0.30_{a}	.64
	(0.11)		(0.19)		(0.49)		(0.26)	

Note. Significant differences between group means ($p < .05$) are indicated by different letters. Means having the same subscript are not significantly different. Adjusted means are presented in parentheses.

Chapter 5

Discussion

The current study examined longitudinal relationships between mental health as conceptualized by the dual-factor model of mental health and school functioning (i.e., GPA, FCAT-math, FCAT-reading, absences, ODRs). Specifically, research questions evaluated: (1) the extent to which student's initial levels of SWB and psychopathology predict their academic achievement one year later, and (2) the extent to which student academic achievement can be predicted from students' initial mental health group membership, as derived from the dual-factor model of mental health. The subsequent discussion explores the findings of this study in relation to the research questions posed, as well as in relation to previous findings in the literature. Next, implications of the current study for practice and contributions to the literature are reviewed, followed by limitations of the study. Finally, suggestions for future research are presented.

Relationships Between Psychopathology, Academic Achievement, and In-School Behavior

Internalizing Psychopathology

Traditionally, mental health has only been explored in relation to the presence or absence of psychopathology. In general, internalizing psychopathology refers to problems that manifest in within-person disruption, typically in the form of anxiety and/or de depressive disorders, rather than problems that are acted out in the environment. In the current study, internalizing psychopathology was measured by a

student self-report questionnaire (i.e., YSR; Achenbach & Rescorla, 2001) of symptoms of anxiety, depression, social withdrawal, and somatic complaints experienced by the adolescent. Negative concurrent and longitudinal associations between childhood internalizing psychopathology and developmental outcomes have long been supported by research (Lewinsohn, Seeley, & Gotlib, 1997; McCarthy, Downes, & Sherman, 2008). However, in the current study, internalizing psychopathology was not a unique indicator of academic achievement (i.e., GPA, FCAT-math or FCAT-reading), after initial levels of academic achievement, parent marital status, and socioeconomic status were controlled for statistically. These findings are similar to results yielded from the longitudinal study by Cole, Martin, Powers, and Truglio (1996), which found that in a sample of 490 third grade students, and 455 sixth grade students, academic competence did not deteriorate because of depression over a 6-month period. Notably, academic competence was measured by how teachers and parents perceive the child's academic competence, which may in turn rely on the types of grades students earn at school.

Regarding predictions of in-school behavior, the current study found that internalizing problems accounted for a significant proportion of the unique variance in subsequent absences, but not in ODRs, after initial school functioning and participant demographic characteristics (i.e., SES, parental marital status) were controlled for statistically. The increased likelihood of students with internalizing problems to have poor school attendance is aligned with studies that found that youth with anxiety and depression were more likely to eventually drop out of school and not pursue higher education (Fergusson & Woodward, 2002; Woodward & Fergusson, 2001). The current study extends this finding to a younger population, and suggests that even in middle

school, internalizing symptoms are a risk factor for reduced attendance. Opportunity to engage in academic tasks (i.e., necessitating attendance) has been found to be directly related to student achievement (Shapiro, 2004), therefore, identification followed by intervention for youth with internalizing symptoms is critical.

Externalizing Psychopathology

Externalizing psychopathology refers to an array of defiant, aggressive, and hyperactive behaviors. These behaviors may also be referred to as undercontrolled problems, because these behaviors are often directed toward others. In the current study, externalizing psychopathology was measured by a rating scale (i.e., TRF; Achenbach & Rescorla, 2001) completed by teachers familiar with student participants. The relationships between indicators of school functioning and externalizing psychopathology evidenced some of the strongest longitudinal relationships yielded in the current study. Specifically, students' initial externalizing psychopathology predicted declines in grades earned the following school year, even after controlling for initial GPA, parental marital status, and SES. These results are similar to previous findings in which a positive predictive relationship was yielded between externalizing problems (e.g., non-compliance, aggression) and indicators of academic underachievement (Caspi, Wright, Moffitt, & Silva, 1998; Dubow, Huesman, Boxer, Pulkkinen, & Kokko, 2006; Ingoldsby, Kohl, McMahon, Lengua, & The Conduct Problems Prevention Research Group, 2006; Kokko & Pulkkinen, 2000; Masten et al., 2005).

A similar link between externalizing psychopathology and scores on a standardized achievement test was not found in the current study, as externalizing problems did not uniquely contribute to predictions of students' FCAT-math and FCAT-

reading scores one year later. Instead, students' performance on the test the previous year accounted for the majority of the unique variance in math and reading scores (42% to 50%) the following school year. This high stability in scores across time made it challenging for any variable to contribute to the (small) amount of change in student performance. Another possible reason why externalizing problems predict GPA, but not FCAT scores, particularly reading, is that as students age, their performance on the FCAT is related more to constructs related to intelligence (i.e., verbal knowledge, non-verbal reasoning, working memory). In turn, FCAT performance is less related to phonemic decoding and comprehension, which are tasks that may be more critical to the classroom curriculum, and thus are more likely to change with course grades (Schatschneider, Buck, Torgeson, Wagner, Hassler, et al., 2004). It should also be noted that SWB and externalizing psychopathology were significantly correlated to both FCAT assessments at Time 2, and internalizing psychopathology was significantly correlated to FCAT-math at Time 2. Thus, the predictors had the most challenge demonstrating associations with *change* in FCAT scores, rather than performance on the test at a given time.

One plausible reason for the negative association between externalizing problems and grades earned in courses (i.e., GPA) is that high levels of externalizing behaviors predict higher rates of out-of-school suspension (Reinke, Herman, Petras, & Ialongo, 2008) and truant behavior (Hunt & Hopko, 2009; Steinhausen, Müller, & Metzke, 2008), both of which limit academic engaged time. This is also consistent with results yielded from the current study, in which externalizing problems accounted for a significant amount of the unique variance in school absences the following school year, even after initial absences were accounted for statistically. Specifically, students with higher scores

of psychopathology of any nature at the beginning of the study were more likely to accrue more absences over the next year. Additionally, initial symptoms of externalizing problems accounted for 5% of the variance in ODRs the following year, even after initial number of ODRs was accounted for statistically. Therefore, because the presence of externalizing problems in this sample is also associated to poor attendance and misbehavior at school, students with externalizing problems are likely to be more frequently absent from class and may not have access to instruction and course work during suspensions or visits to the office. This diminished academic engaged time, including reduced access to academic instruction and class work, may therefore negatively affect student grades in class, but not their performance on a state standardized test, which may reflect a more basic and general skill set that is stable over time. Because these students may have less access to the curriculum and may eventually engage in behaviors that adversely affect their learning and potentially the learning of their peers to an extent that may ultimately result in expulsion, it is important to attend to identification followed by intervention for these mental health problems.

Relationships Between SWB, Academic Achievement, and In-School Behavior

In recent decades, proponents of the positive psychology movement have advocated for a focus on a positive state of mind in youth, rather than only remediating individuals' dysfunctions and flaws (Gilman & Huebner, 2006; Park & Peterson, 2006; Seligman & Csikszentmihalyi, 2000; Suldo & Huebner, 2006). Studies of wellness commonly include the assessment of subjective well-being (SWB). SWB is a broad construct that is comprised as both cognitive judgments of the enduring satisfaction one has with his or her life (i.e., life satisfaction) as well as experiences of positive and

negative emotions (i.e., positive and negative affect; Diener, Lucas, & Oishi, 2005; Haybron, 2008). SWB has been found to be inversely related to internalizing and externalizing psychopathology in youth (Huebner, Frunk, & Gillman, 2000). Additionally, previous studies have found that high SWB is associated with optimal functioning in school-related domains, including academic achievement (Gilman & Huebner, 2006; Suldo & Shaffer, 2008).

The current study was the first to examine longitudinal relationships between student SWB and objective indicators of academic functioning. Students' initial levels of SWB yielded positive, bivariate correlations with their GPAs and scores earned on the FCAT-math and -reading tests during the following school year. Additionally, students' initial SWB predicted their GPAs the following year, even after initial GPA and relevant student demographic characteristics were controlled for statistically. Specifically, students with greater SWB at the beginning of the study were more likely to experience gains in GPA over the next year. Although small, positive correlations were yielded between initial SWB and performance on the FCAT the following year, SWB did not emerge as a reliable predictor of change in FCAT scores in multiple regression analyses, suggesting that SWB does not help predict subsequent FCAT performance above and beyond what can be predicted based on knowledge of earlier FCAT performance alone. These weak longitudinal relationships between SWB and some indicators of academic achievement are consistent with results from the only published longitudinal study of any aspect of SWB in relation to any construct of academic functioning in youth (i.e., students' attitudes towards schooling; Huebner, Funk, & Gilman, 2000). In that study,

Huebner and colleagues found that life satisfaction yielded concurrent, but not predictive, associations with high school students' attitudes towards teachers and school.

The results of the current study with respect to bivariate and multivariate analyses of the relationship between student SWB and subsequent grades earned in courses serve to underscore the important association between psychological wellness and authentic indicators of academic achievement, consistent with prior cross-sectional studies that demonstrated significant links between measures of wellness (i.e., positive affect, SWB, happiness) and academic achievement (Chenge & Furnham, 2002; Kirkcaldy, Furnham, & Siefen, 2004; Suldo & Shaffer, 2008). Regarding associations between schooling and SWB, Suldo, Shaffer, and Riley (2008) demonstrated that students' grades earned in courses, beliefs about learning and academic ability, and perceptions of school climate were correlated with their life satisfaction in a positive direction. Life satisfaction is also linked to higher self-perceptions of academic performance (Leung, McBride-Chang, & Lai, 2004; Suldo & Huebner, 2006). Similarly, research on the affective component of SWB found that experiences of positive emotion predicted desirable school functioning, namely students' cognitive engagement and psychological engagement in academic related tasks (Reschly, Huebner, Appleton, & Antaramian, 2008). Taken together, a growing body of literature supports that students' SWB is tied to their current and future grades earned in courses, as well as likely related to thoughts and behaviors pertinent to school climate, perceived academic abilities, and engagement in learning.

Previous research has found negative concurrent relationships between indicators of wellness (i.e., life satisfaction, SWB) and engagement in aggression and risky behaviors (MacDonald, Piquero, Valois, & Zullig, 2005), as well as poor attendance

(Suldo & Shaffer, 2008) in youth. However, the current study did not find students' initial levels of SWB to predict their attendance or their misbehavior the following year (after controlling for demographic variables and initial in-school behavior variables). Thus, preliminary longitudinal data suggests SWB is more strongly tied to later achievement, such as GPA and to a lesser degree scores on standardized assessments of skills, than to subsequent in-school behavior. Potential reasons for this discrepancy may be that the FCAT is more closely related to a student's intellectual ability (Schatschneider, et al., 2004), whereas course grades are more malleable across time and rely heavily upon students attending class on a consistent basis and completing coursework.

Relationships Between the Dual-factor Model of Mental Health, Academic Achievement, and In-School Behavior

A dual-factor model of mental health is comprised of modern indicators of wellness (i.e., SWB) as well as traditional indicators of psychopathology (i.e., internalizing and externalizing symptoms indicative of mental disorders). Using the dual-factor model of mental health yields two unique groups of students: those who reported high SWB and high psychopathology (i.e., symptomatic but content), as well as youth who scored low on measures of psychopathology and low on indices of SWB (i.e., vulnerable). The two other categories yielded from this model are youth who have historically been studied in a traditional model of psychology: youth with high psychopathology and low SWB (i.e., troubled), and youth without psychopathology and high SWB (i.e., complete mental health). These four mental health groups yielded from the dual-factor model of mental health are presented in Table 14.

Table 14

Mental Health Groups Yielded from the Dual-Factor Model of Mental Health

	High SWB	Low SWB
High Psychopathology	***Symptomatic but Content***	***Troubled***
Low Psychopathology	***Complete Mental Health***	***Vulnerable***

The current study was the first examination of longitudinal student outcomes predicted by the dual-factor model of mental health. Results from the current study indicated that students' initial mental health group membership predicted their change in school functioning on two indicators: GPA and absences. Specifically, the troubled students evidenced greater declines in GPA than their peers initially classified as vulnerable or complete mental health. Essentially, students without clinical levels of psychopathology at the beginning of the study fared better with regard to course grades than students whose mental health profile involved the presence of psychopathology coupled with low SWB. On the other hand, students who initially demonstrated average to high SWB as well as clinical levels of high psychopathology (i.e., symptomatic but content students) did not deteriorate more over time, with regards to GPA, than students initially classified as complete mental health or vulnerable (i.e., absence of psychopathology). Thus, although the initial low levels of SWB demonstrated by the vulnerable students at the beginning of the study did not seem to predispose them to experiencing relatively steep declines in GPA (i.e., as compared to students with complete mental health), it is plausible that the average to high levels of SWB found

among the symptomatic but content youth protected these students from experiencing the greatest declines in GPA. It is possible that despite the presence of psychopathology, the average to high levels of SWB initially experienced by the symptomatic but content youth may enable them to perform better academically, perhaps by drawing on their relatively intact social relations with adults and peers (Greenspoon & Saklofske, 2001; Suldo & Shaffer, 2008).

Although no longitudinal research exists examining such hypotheses, results are somewhat consistent with the cross-sectional results of Suldo and Shaffer's (2008) research, which found that both the presence of average to high SWB and the absence of psychopathology were associated with optimal academic success. In contrast to Suldo and Shaffer's research that yielded concurrent distinctions in multiple aspects of academic achievement (i.e., FCAT-reading, absences, and positive attitudes predictive of academic success such as academic self-confidence, valuing of school, and motivation and self-regulation for completion of academic tasks) between students who were vulnerable and had complete mental health, these groups did not differ one year later in regards to change over time GPA or FCAT scores, or even Time 2 mean performance on these variables. A possible reason for the later similarities in GPA and FCAT scores between these two groups that began the study with different levels of SWB pertains to a possible lack of stability in regards to mental health group membership across time. For example, it is possible that a student who met criteria for the symptomatic but content mental health group at Time 1 would have met criteria for the troubled mental health group at Time 2 if assessed again using measures of psychopathology and SWB at this later time. More information regarding the extent to which student' SWB (as well as

symptoms of psychopathology) fluctuate longitudinally is needed to evaluate this area of inquiry.

In regards to the relationship between mental health group status and change in absences across time, results of the current study suggested that youth with psychopathology (i.e., students classified as symptomatic but content or troubled) accrued more absences over time regardless of their initial low vs. average to high SWB status. However, at the end of the study (Time 2), the best school attendance and school grades were found by students who had both average/high SWB and low psychopathology one year earlier (i.e., complete mental health). This finding speaks to the notion that the absence of psychopathology alone may not be the best predictor of subsequent in-school behavior. Having low psychopathology as well as high levels of SWB appears to be associated with the best developmental outcomes in youth, and therefore wellness should also be attended to. An unanticipated finding was that youth in the troubled mental health group were no different than their peers in the vulnerable mental health group. Additionally, youth in the symptomatic but content mental health group had more absences than students without psychopathology (i.e., youth in complete mental health and vulnerable groups) at Time 2 and across time. A possible reason why youth in the symptomatic but content group were not protected from worse attendance may be linked to student characteristics that are unknown. For example, students in this group may be more likely to have externalizing problems and therefore be more truant from school. This is consistent with Greenspoon and Saklofske's (2001) view of this group as externally maladjusted. More research examining student characteristics within a specific mental health group is needed to determine the unique features of these

students. Taken together, these findings from the longitudinal examination of the dual-factor model support the notion that assessing students' complete functioning (i.e., using indicators of wellness and psychopathology) may be useful, as SWB may serve as a protective factor, and in some cases as a risk factor, for healthy school functioning.

Of note, the current study did not yield longitudinal associations between student mental health group membership and ODRs across time. This contrasts previous research that demonstrated negative concurrent relationships between group membership and ODRs (Suldo & Shaffer, 2008). The null result is also discrepant from studies that identified concurrent links between risky behaviors and life satisfaction (MacDonald, Piquero, Valois, & Zullig, 2005), as well as concurrent and predictive relationships between poor in-school behavior and psychopathology (Hunt & Hopko, 2009; Loe & Feldman, 2007; Reinke, Herman, Petras, & Ialongo, 2008; Steinhausen, Müller, & Metzke, 2008). Again, this may be due to unknown fluctuations in students' mental health status across the one year-period; it is possible that students' in-school behavior during the second wave of the study was more tied to their current (and possibly greatly improved or diminished) mental health status. Alternatively, other variables not examined in the current study such as affiliations with deviant peer groups, motivation to excel academically, and diminished valuing of school, may serve as the primary predictors of students' later in-school behavior (as opposed to being primarily influenced by students' earlier mental health status). Of note, an unanticipated finding involving ODRs is that youth in the symptomatic but content group had significantly more ODRs than youth without psychopathology and even students in the troubled group at Time 2. One hypothesis for this finding is that in general, symptomatic but content students were

more likely to have clinical levels of externalizing (vs. internalizing) problems. More information regarding the specific symptom clusters manifested by students identified as having clinical levels of psychopathology is needed to best understand the relationship between mental health group membership and in-school behavior.

Implications for School Psychologists

Early adolescence is a critical stage of change and growth for youth. Therefore, institutions responsible for educating and socializing children, such as schools, should monitor students' full range of functioning, using resources that evaluate students' strengths as well as maladaptive dysfunctions. The current study and previous studies support that students with low levels of psychopathology and average to high levels of SWB have been shown to demonstrate superior functioning within the areas of achievement, perceived academic abilities, motivation, and social functioning, compared to their peers (Suldo & Schaffer, 2008). The current study provides further support for collecting information regarding students' SWB in order to strengthen a school psychologist's understanding of students' mental health functioning as well as academic functioning (i.e., grades earned in class, attendance), both short-term and long-term. This is also aligned with a paradigm shift in the field of psychology to also attend to students' strengths and overall wellness (Doll & Cummings, 2008; Maddux, 2005). Notably, results of the current study also underscore the importance of effective mental health prevention programs and intervention efforts geared toward youth with psychopathology in order to promote the best school functioning across time.

School psychologists should advocate for promoting complete mental health in youth, including the presence of satisfactory SWB, as a form of prevention. Such

prevention efforts might begin with school-and/or classroom-wide screenings to assess students' levels of perceived wellness and symptoms of psychopathology, and/or the use of teacher nominations to serve as a mechanism to identify students with clinical levels of psychopathology. In addition to identification activities, teacher training and classroom activities could include information regarding curriculum that can be used within the classroom to increase students' levels of perceived wellness (e.g., exercises intended to facilitate gratitude; Froh, Sefick, & Emmons, 2008).

Because the current study demonstrated that average to high SWB, coupled with minimal symptoms of psychopathology, were associated with improved grades across time, interventions that purposefully target these indicators of mental health are warranted. For instance, school psychologists should aim to provide parent and teacher consultation, as well as individual and group counseling interventions, aimed at increasing SWB and decreasing symptoms of mental disorders. Such interventions can occur at either the school-wide level, or be implemented with small groups of students, or tailored to meet an individual student's needs. Specific interventions to be implemented should be based on the student's needs. For example, if a student referred to the school psychologist evidences low scores on a self-report measure of life satisfaction, such as the SLSS (Huebner, 1991), and scores in the average range on a measure of psychopathology, such as the BASC-2 (Reynolds & Kamphaus, 2004), it would be advantageous to administer an additional rating scale to inform interventions. For example, the Multidimensional Student's Life Satisfaction Scale (Huebner, 1994) would yield information about the student's life satisfaction in five domains of life (i.e., friends, family, school, self, living environment) and a school psychologist could develop

interventions that target the specific domain(s) (e.g., social skills training for the domain of friends).

Contributions to the Literature

There have been a number of studies that have examined academic and behavioral correlates and predictors of children's and adolescents' mental health, but none have examined how measurements of SWB can predict academic achievement and in-school behavior longitudinally; the current study has filled this gap. The current study also contributed to the literature by providing the first examination of the dual-factor model of mental health in relation to later academic achievement and in-school behavior. The current study revealed that students who were symptomatic but content were somewhat protected from the worst academic achievement (i.e., that experienced by troubled youth), as symptomatic but content students evidenced change in GPAs similar to that of their asymptomatic peers. Additionally, because students without psychopathology and high SWB had the best school functioning outcomes, this study provided support for attending to students' happiness as well as to their symptoms of psychopathology. In sum, this study provided empirical support for using the dual-factor model of mental health to assess adolescent psychological functioning.

Limitations

Although the utility of this study is to determine if mental health status as categorized by the dual-factor model is able to predict academic achievement over a one year period, factors that may impact student mental health during that period (i.e., trauma, provision of mental health services) are unknown and may confound results. Thus, students who began the study in a given mental health group may have changed their

mental health status at some point for an unknown reason and in an unknown direction. The stability of the dual-factor model classifications is unknown.

Ecological validity, or ecological transferability, refers to the ability of the researcher to generalize the findings of a study to other settings (Tashakkori & Teddlie, 2003). Violations to population validity pertain to incidences when the researcher draws invalid conclusions to populations with different characteristics than the population under current study. In the current study, 56% of students are Caucasian, therefore extending the findings from the current study to students of other ethnicities should be done cautiously. Additionally, although students reside in different schools, participants used in the current study were selected from one middle school in one school district. Therefore, ecological and population transferability of the current study is minimized (Tashakkori & Teddlie, 2003). Applications of these results to rural communities are also cautioned, since the middle school is located in an urban district. Furthermore, in the current study students were initially recruited from a middle school located within a middle-to high-SES community; therefore, generalizations of these results to lower SES regions are not recommended. At Wave 1 of the study, a convenience sampling method was used; therefore, students who agreed to participate in the current study may differ from students who declined to participate. In sum, these unique characteristics of the sample population may limit the extent to which findings yielded from this study can be valid for other populations, including the school population from which it was drawn.

Another limitation of the current study entails the non-normal distributions on four of the Time 1 variables and three of the later outcome variables. Employing variables with large skew and/or kurtosis in the analyses may have reduced the power to

detect a significant effect in the event(s) that a significant effect actually existed. Finally, 41 students were lost to attrition throughout the duration of the study (i.e., only included in Wave 1 of data collection). Fortunately, the sample did not appear to be biased as a result of attrition, as a series of chi-square and *t*-tests between the longitudinal sample (i.e., 300 students who participated at both Waves 1 and 2) and the 41 participants lost to attrition revealed that students who withdrew from the longitudinal sample were no more likely to be of a particular mental health group or demographic group than peers who remained in the study at Time 2, nor were they unique on any indicator of initial mental health functioning (i.e., SWB variable or psychopathology), academic achievement, or in-school behavior.

Summary and Future Directions

The current study has added to the literature by providing the first examination of longitudinal relationships between SWB and objective indicators of school functioning, as well as the first longitudinal examination of academic outcomes associated with students' mental health status as conceptualized by the dual-factor model of mental health. Further, although longitudinal relationships exploring psychopathology and developmental outcomes in youth are prevalent in the literature, many of these studies did not use outcome measures that are readily accessible and relevant to student school functioning. The current study identified important trends in the relationship between mental health and varying levels of academic achievement and in-school behavior. Specifically, findings support that a lack of psychopathology alone is not enough to ensure the best school functioning in youth across time. Specifically, students who had low psychopathology coupled with average to high SWB had the best outcomes in two

domains (GPA and school attendance). Findings also support the importance of focusing on assessment and intervention appropriate for youth with psychopathology. Additional studies examining the association between mental health, as conceptualized by the dual-factor model, and student outcomes relevant to education will contribute to the field by providing a better understanding of the utility of SWB in youth.

In order to gain a better understanding of how to best conceptualize mental health and provide the most impactful services to youth, there are several natural directions for future research. First, more information is needed regarding the categories yielded in the dual-factor model of mental health. Specifically, it would be beneficial to know how relatively stable group membership in one of the four groups is, on average. In other words, for what extent of time do typical students in the symptomatic but content group meet the mental health cut-score requirements to remain in this group (e.g., six months, one year)? Additionally, information regarding common student characteristics associated with each of these four groups is necessary to provide a richer understanding of the model and to inform practice. For example, knowing that students in the symptomatic but content group typically have higher levels of externalizing problems would point the school psychologist in the appropriate direction for intervention or prevention. Another direction would be to explore which aspects of SWB tend to be associated with better outcomes in youth, both concurrently and longitudinally. For instance, is life satisfaction or positive affect associated more with desirable academic and in-school behavior outcomes? Information from this type of exploration would provide relevant information to direct prevention and intervention procedures aimed to increase wellness in youth. This is especially important for early adolescents as Colarossi

and Eccles (2003) have suggested that this stage of development is critical to prevent the development of negative mental health outcomes in late adolescence and adulthood. Thus, continuing to research the role of SWB in various outcomes in this developmental time period will be especially important as the literature begins to inform prevention efforts in schools as well as clinical settings.

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Appendices

Appendix A

Parent Consent Form

Dear Parent or Caregiver:

This letter provides information about a research study that will be conducted at Liberty Middle School by investigators from the University of South Florida. Our goal in conducting the study is to determine the effect of students' psychological wellness on their school performance, physical health, and social relationships.

✓ Who We Are: The research team consists of Shannon Suldo, Ph.D., a professor in the School Psychology Program at the University of South Florida (USF), and several doctoral students in the USF College of Education. We are planning the study in cooperation with the principal of Liberty Middle School (LMS) to make sure that the study provides information that will be useful to the school.

✓ Why We are Requesting Your Child's Participation: This study is being conducted as part of a project entitled, "Subjective Well-Being of Middle School Students." Your child is being asked to participate because he or she is a student at Liberty.

✓ Why Your Child Should Participate: We need to learn more about what leads to happiness and health during the pre-teen years! The information that we collect from students may help increase our overall awareness of the importance of monitoring students' happiness during adolescence. In addition, group-level results of the study will be shared with the teachers and administrators at LMS in order to increase their knowledge of the relationship between specific school experiences and psychological wellness in students. Please note neither you nor your child will be paid for your child's participation in the study. However, all students who participate in the study will be entered into a drawing for one of several gift certificates.

✓ What Participation Requires: If your child is given permission to participate in the study, he or she will be asked to complete several paper-and-pencil questionnaires. These surveys will ask about your child's thoughts, behaviors, and attitudes towards school, teachers, classmates, family, and life in general. The surveys will also ask about your child's physical health. Completion is expected to take your child between 45 and 60 minutes. We will personally administer the questionnaires at LMS, during regular school hours, to large groups of students who have parent permission to participate. Participation will occur during one class period this school year. If your child is at LMS next year, your child will be asked to complete the same surveys again so that we can examine change over time. In total, participation will take about one hour of your child's time each year. Another part of participation involves a review of your child's school records. Under the supervision of school administrators, we will retrieve the following information about your child: grade point average, FCAT scores, attendance, and history of discipline referrals. Finally, one of your child's teachers will be asked to complete a brief rating scale about your child's behavior at school.

Appendix A (Continued)

✓ Please Note: Your decision to allow your child to participate in this research study must be completely voluntary. You are free to allow your child to participate in this research study or to withdraw him or her at any time. Your decision to participate, not to participate, or to withdraw participation at any point during the study will in no way affect your child's student status, his or her grades, or your relationship with LMS, USF, or any other party.

✓ Confidentiality of Your Child's Responses: There is minimal risk to your child for participating in this research. We will be present during administration of the questionnaires in order to provide assistance to your child if he or she has any questions or concerns. Additionally, school guidance counselors will be available to students in the unlikely event that your child becomes emotionally distressed while completing the measures. Your child's privacy and research records will be kept confidential to the extent of the law. Authorized research personnel, employees of the Department of Health and Human Services, the USF Institutional Review Board and its staff, and other individuals acting on behalf of USF may inspect the records from this research project, but your child's individual responses will not be shared with school system personnel or anyone other than us and our research assistants. Your child's completed questionnaires will be assigned a code number to protect the confidentiality of his or her responses. Only we will have access to the locked file cabinet stored at USF that will contain: 1) all records linking code numbers to participants' names, and 2) all information gathered from school records. All records from the study (completed surveys, information from school records) will be destroyed in four years. Please note that although your child's specific responses on the questionnaires will not be shared with school staff, if your child indicates that he or she intends to harm him or herself, we will contact district mental health counselors to ensure your child's safety.

✓ What We'll Do With Your Child's Responses: We plan to use the information from this study to inform educators and psychologists about the relationship between students' psychological wellness (particularly their subjective well-being, also referred to as happiness) and their school performance, physical health, and social relationships. The results of this study may be published. However, the data obtained from your child will be combined with data from other people in the publication. The published results will not include your child's name or any other information that would in any way personally identify your child.

✓ Questions? If you have any questions about this research study, please contact Dr. Suldo at (813) 974-2223. If you have questions about your child's rights as a person who is taking part in a research study, you may contact a member of the Division of Research Compliance of the USF at (813) 974-9343.

✓ Want Your Child to Participate? To permit your child to participate in this study, please complete the attached consent form and have your child turn it in to his or her homeroom teacher.

Sincerely,
Shannon Suldo, Ph.D.
Assistant Professor of School Psychology
Department of Psychological and Social Foundations

Appendix A (Continued)

Consent for Child to Take Part in this Research Study

I freely give my permission to let my child take part in this study. I understand that this is research. I have received a copy of this letter and consent form for my records.

_____ _____

Printed name of child Grade level of child

_____ _____ _____

Signature of parent Printed name of parent of child taking part in the study Date

Statement of Person Obtaining Informed Consent

I certify that participants have been provided with an informed consent form that has been approved by the University of South Florida's Institutional Review Board and that explains the nature, demands, risks, and benefits involved in participating in this study. I further certify that a phone number has been provided in the event of additional questions.

_____

Signature of person obtaining consent _____

Printed name of person obtaining consent _____

Date _____

Appendix B

Student Assent Form

Hello!

Today you will be asked to take part in a research study by filling out several surveys. Our goal in conducting the study is to determine the effect of students' mental health on their school performance, physical health, and social relationships.

- ✓ Who We Are: The research team is led by Shannon Suldo, Ph.D., a professor in the School Psychology Program at the University of South Florida (USF). Several doctoral students in the USF College of Education are on the team. We are working with your principal to make sure this study will be helpful to your school.

- ✓ Why We Are Asking You to Take Part in the Study: This study is part of a project called, "Subjective Well-Being of Middle School Students." You are being asked to take part because you are a student at Liberty Middle School (LMS).

- ✓ Why You Should Take Part in the Study: We need to learn more about what leads to happiness and health during the pre-teen years! The information that we collect may help us better understand why we should monitor students' happiness. In addition, results from the study will be shared with LMS to show them how happiness is related to school grades and behavior, physical health, and social relationships. You will not be paid for taking part in the study.

- ✓ Filling Out the Surveys: These surveys will ask you about your thoughts, behaviors, and attitudes towards school, family, and life in general. The surveys will also ask about your physical health. It will probably take between 45 and 60 minutes to fill out the surveys. We will also ask you to complete these surveys again one year from now.

- ✓ What Else Will Happen if You Are in the Study: If you choose to take part in the study, we will look at some of your school records- grades, discipline record, attendance, and FCAT scores. We will gather this information under the guidance of school administrators.

- ✓ Please Note: Your involvement in this study is voluntary (your choice). By signing this form, you are agreeing to take part in this study. Your decision to take part, not to take part, or to stop taking part in the study at any time will *not* affect your student status or your grades; you will not be punished in any way. If you choose not to take part, it will not affect your relationship with LMS, USF, or anyone else.

- ✓ Privacy of Your Responses: Your school guidance counselors are also on hand in case you become upset. Your privacy and research records will be kept confidential (private, secret) to the extent of the law. People approved to do

research at USF, people who work for the Department of Health and Human Services, the USF Institutional Review Board, and its staff, and other individuals acting on behalf of USF may look at the records from this research project. However, your individual responses will not be shared with people in the school system or anyone other than us and our research assistants. Your completed surveys will be given a code number to protect the privacy of your responses. Only we will have the ability to open the locked file cabinet stored at USF that will contain: 1) all records linking code numbers to names, and 2) all information gathered from school records. All records from the study (completed surveys, information from school records) will be destroyed in four years. Again, your specific responses will not be shared with school staff. However, if you respond on the surveys that you plan to harm yourself, we will let district counselors know in order to make sure you are safe.

- ✓ What We'll Do With Your Responses: We plan to use the information from this study to let others know about how students' happiness is related to school grades, physical health, and social relationships. The results of this study may be published. However, your responses will be combined with other students' responses in the publication. The published results will not include your name or any other information that would in any way identify you.

- ✓ Questions? If you have any questions about this research study, please raise your hand now or at any point during the study. Also, you may contact us later at (813) 974-2223 (Dr. Suldo). If you have questions about your rights as a person who is taking part in a research study, contact a member of the Division of Research Compliance of the USF at (813) 974-9343. Also call the Florida Department of Health, Review Council for Human Subjects at 1-850-245-4585 or toll free at 1-866-433-2775.

Thank you for taking the time to take part in this study.

Sincerely,
Shannon Suldo, Ph.D.
Assistant Professor of School Psychology
Department of Psychological and Social Foundations

Assent to Take Part in this Research Study

I give my permission to take part in this study. I understand that this is research. I have received a copy of this letter and assent form.

_____	_____	_____
Signature of child taking part in this study	Printed name of child	Date

Appendix B (Continued)

Statement of Person Obtaining Informed Consent

I certify that participants have been provided with an informed consent form that has been approved by the University of South Florida's Institutional Review Board and that explains the nature, demands, risks, and benefits involved in participating in this study. I further certify that a phone number has been provided in the event of additional questions.

_____	_____	_____
Signature of person obtaining consent	Printed name of person obtaining consent	Date

Appendix C

Demographics Form

ID # _____ Spring 2006

Birthdate _____- _____- _____
(month) (day) (year)

PLEASE READ EACH QUESTION AND CIRCLE **ONE** ANSWER PER QUESTION:

1. I am in grade: 6 7 8

2. My gender is: Male Female

3. Do you receive free or reduced lunch? Yes No

4. My race/ethnic identity is:
   a. American Indian or Alaska Native
   b. Asian
   c. Black or African American
   d. Hispanic or Latino
   e. Native Hawaiian or Other Pacific Islander
   f. White
   g. Multi-racial (please specify):_____
   h. Other (please specify):_____

5. My biological parents are:
   a. Married
   b. Divorced
   c. Separated
   d. Never married
   e. Never married but living together
   f. Widowed

6. On average, how much time <u>per week</u> do you spend doing your homework:
   a. Less than 1 hour
   b. From 1 hour to less than 3 hours
   c. From 3 hours to less than 5 hours
   d. From 5 hours to less than 10 hours
   e. From 10 hours to less than 15 hours
   f. From 15 hours to less than 20 hours
   g. From 20 hours to less than 25 hours
   h. 25 hours or more

Appendix C (Continued)

Sample Questions:

	Never	Almost Never	Sometimes	Fairly Often	Very Often
1. I go to the beach	1	2	3	4	5

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
2. Going to the beach is fun	1	2	3	4	5

Appendix D

Students' Life Satisfaction Scale (Huebner, 1991)

We would like to know what thoughts about life you've had during the past several weeks. Think about how you spend each day and night and then think about how your life has been during most of this time. Here are some questions that ask you to indicate your satisfaction with life. In answering each statement, circle a number from (**1**) to (**6**) where (**1**) indicates you **strongly disagree** with the statement and (**6**) indicates you **strongly agree** with the statement.

	Strongly Disagree	**Mostly Disagree**	**Mildly Disagree**	**Mildly Agree**	**Mostly Agree**	**Strongly Agree**
1. My life is going well	**1**	**2**	**3**	**4**	**5**	**6**
2. My life is just right	**1**	**2**	**3**	**4**	**5**	**6**
3. I would like to change many things in my life	**1**	**2**	**3**	**4**	**5**	**6**
4. I wish I had a different kind of life	**1**	**2**	**3**	**4**	**5**	**6**
5. I have a good life	**1**	**2**	**3**	**4**	**5**	**6**
6. I have what I want in life	**1**	**2**	**3**	**4**	**5**	**6**
7. My life is better than most kids'	**1**	**2**	**3**	**4**	**5**	**6**

Appendix E

Positive and Negative Affect Scale for Children (PANAS-C; Laurent et al., 1999)

This scale consists of a number of words that describe different feelings and emotions. Read each item and then circle the appropriate answer next to that word. Indicate to what extent you have felt this way during the past few weeks.

	Feeling or emotion:	**Very slightly or not at all**	**A little**	**Moderately**	**Quite a bit**	**Extremely**
1.	Interested	1	2	3	4	5
2.	Sad	1	2	3	4	5
3.	Frightened	1	2	3	4	5
4.	Excited	1	2	3	4	5
5.	Ashamed	1	2	3	4	5
6.	Upset	1	2	3	4	5
7.	Happy	1	2	3	4	5
8.	Strong	1	2	3	4	5
9.	Nervous	1	2	3	4	5
10.	Guilty	1	2	3	4	5
11.	Energetic	1	2	3	4	5
12.	Scared	1	2	3	4	5
13.	Calm	1	2	3	4	5
14.	Miserable	1	2	3	4	5
15.	Jittery	1	2	3	4	5
16.	Cheerful	1	2	3	4	5
17.	Active	1	2	3	4	5
18.	Proud	1	2	3	4	5
19.	Afraid	1	2	3	4	5
20.	Joyful	1	2	3	4	5
21.	Lonely	1	2	3	4	5
22.	Mad	1	2	3	4	5
23.	Disgusted	1	2	3	4	5
24.	Delighted	1	2	3	4	5
25.	Blue	1	2	3	4	5
26.	Gloomy	1	2	3	4	5
27.	Lively	1	2	3	4	5

Note. This appendix has been modified in font size to comply with margin requirements.