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A Longitudinal Examination of High School Students' Group Membership in a Dual-Factor Model of Mental Health: Stability of Mental Health Status and Predictors of Change

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A Longitudinal Examination of High School Students' Group Membership in a Dual-Factor Model of Mental Health: Stability of Mental Health Status and Predictors of Change

by

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Abstract

A dual-factor model of mental health includes indicators of wellness (i.e., subjective well-being; SWB) and psychopathology (i.e., internalizing and externalizing behavior problems) in defining youth mental health. In this model, four categories of psychological functioning with distinct levels of SWB and psychopathology emerge, including two that are overlooked (i.e., Vulnerable and Symptomatic but Content) in traditional assessments that assume SWB and psychopathology are opposite ends of the same continuum. The present study investigated the 1-year stability of adolescent mental health as classified by a dual-factor model, and identified predictors of stability and change, in a sample of 425 high school students. Results included that 60% of the high school students remained in the same mental health group over both time points. The Complete Mental Health Group (i.e., high SWB and low psychopathology) showed the most stability over time as nearly 80% of students initially in this group retained that mental health profile one year later. The initially Symptomatic but Content group (i.e., high SWB and high psychopathology) showed the least stability, with only 17% of students remaining in this mental health group the following year. Higher socioeconomic status and lower neuroticism reliably and uniquely predicted which students who initially experienced Complete Mental Health remained that way. Low neuroticism also predicted which students with partial mental health initially (i.e., Vulnerable or Symptomatic but Content) improved to Complete Mental Health. Once the shared variance amongst factors had been accounted for, no factors reliably and uniquely predicted which students

initially Troubled stayed that way, nor which students moved from partial mental health (i.e., Vulnerable, Symptomatic but Content) to Troubled. This study contributes to the literature by providing the first examination of the stability of high school students' mental health as defined by a dual-factor model. Additionally, this study provides insight into the factors which predict students' stability and movement across mental health groups over time. Both sets of findings can be useful for school-based mental health professionals' prevention and intervention work with regard to how to operationalize student mental health, and intrapersonal risk factors important to detect.

Chapter 1: Introduction

Statement of the Problem

Historically, psychology has defined "mental wellness" as the absence of psychopathology (Maddux, 2005). Under this conceptualization, if an adolescent does not meet criteria for a particular disorder, he or she is considered subclinical and no treatment or intervention would follow. With traditional assessments of psychopathology, mental health becomes assumed in the absence of mental illness. However, there have been calls over the past decade for a paradigm shift in the field of psychology toward a more comprehensive conceptualization of mental health that includes markers of well-being (Diener, 2000; Seligman & Csikszentmihalyi, 2000). A growing body of research indicates that an absence of psychopathology does not equate with complete mental health, and that wellness and psychopathology are not on opposite poles of the same continuum (Keyes, 2006). Furthermore, not all youth with clinical levels of psychopathology report low levels of happiness (referred to as subjective well-being [SWB]) or poor quality of life. Research demonstrates that the best functioning youth have both an absence of psychopathology and high levels of happiness (Greenspoon & Saklofske, 2001; Suldo & Shaffer, 2008).

Emerging research has proposed integrating indicators of psychopathology (i.e., internalizing and externalizing problems) and subjective well-being (i.e., life satisfaction, positive and negative affect) into one model of mental health. In this approach, it is presumed that four different mental health statuses exist, including two groups (one with

low SWB and high psychopathology, and one with low SWB and low psychopathology) generally overlooked in traditional definitions of mental health. Traditional models focused primarily on people with high psychopathology (and presumably low SWB), and assumed that individuals not in this group had the opposite profile (high SWB and low psychopathology).

Greenspoon and Saklofske (2001) first investigated the presence and utility of a dual-factor model of mental health in youth. Specifically, they integrated SWB and psychopathology into one model to assess the mental health of elementary school children; the four distinct groups emerged as predicted. Results also illustrated the utility of examining youth SWB, as children with high SWB and low psychopathology reported better interpersonal relations, and more confidence in their scholastic competence than youth with similar levels of psychopathology but with low SWB. Children with high levels of psychopathology who also reported high SWB were more sociable and more confident in their academic competence than children with similarly high levels of psychopathology with low SWB. Notably, children with low SWB and high psychopathology reported the lowest levels of global self-worth, highest levels of emotionality, highest levels of external locus of control, and poorest behavior conduct.

This research has been replicated and extended to students in middle school (Antaramian, Huebner, Hills, & Valois, 2010; Suldo & Shaffer, 2008), high school (Suldo, Thalji, Frey, McMahan, Chappel, & Fefer, 2011), and college (Eklund, Dowdy, Jones, & Furlong, 2011). In each study, four distinct mental health groups, including two that are overlooked with traditional assessment methods, emerged. Approximately 4 to 17.3% of participants fell in the symptomatic but content classification (high SWB and

high psychopathology), showing that high SWB and high psychopathology can co-exist. Additionally, 8.1 to 13% of youth across samples were identified as vulnerable (low SWB and low psychopathology) supporting the notion that an absence of psychopathology does not ensure the presence of positive psychological functioning. Furthermore, these studies repeatedly demonstrated that the best outcomes are associated with high levels of SWB and low levels of psychopathology (i.e., Complete Mental Health), even when compared to youth with similarly low levels of psychopathology but without the high SWB (i.e., Vulnerable status). Additionally, SWB appeared to serve as a protective factor for youth with high psychopathology, as youth with high SWB and high psychopathology (Symptomatic but Content) tended to fare better on social and physical health outcomes than their peers with similar levels of psychopathology but with low SWB (Troubled). Mental health group status also shows relevance for future functioning, with youth with complete mental health experiencing the best academic outcomes one year later (Suldo, Thalji, & Ferron, 2011).

Only one known study has explored the stability and movement of adolescents' group membership in the dual-factor model. Specifically, Kelly and colleagues (2012) examined the longitudinal stability of mental health groups within a dual-factor model in middle school students. A sample of 730 students completed measures of SWB and psychopathology in fall 2008 and spring 2009. Youth in the complete mental health group at Time 1 were the most likely to maintain their mental health status, and the vulnerable group showed the least amount of stability. Youth identified as vulnerable at Time 1 were most likely to move into the complete mental health group at Time 2, indicating that their psychopathology remained low but their happiness increased over

time. The majority of members of the symptomatic but content group at Time 1 either maintained that status at Time 2 or moved into the complete mental health group, indicating students in this group were more likely to maintain their high levels of happiness and experience a decrease in psychopathology than they were to become less happy with the same levels of psychopathology (which would place them in the troubled group at Time 2).

No known research has explored the extent to which high school students' retain their mental health status over time, or the typical mobility between mental health groups. The existing studies that have examined the stability of adolescent psychopathology and/or the stability of adolescent SWB suggest that both are moderately stable. In general, approximately half of adolescents exhibiting a significant externalizing or internalizing problem continue to exhibit the problem one year later (Reitz, Dekovic, & Meijer, 2005). Both global and domain-specific life satisfaction exhibit only moderate stability over time (Antarmian & Huebner, 2009; Lewis, Huebner, Malone, & Valois, 2011).

No known research has explored predictors of future mental health status as determined according to the dual-factor model. The existing literature base on predictors of types of psychopathology and indicators of SWB suggests that demographic, intrapersonal, and environmental factors play a role in later mental health. Regarding demographic factors, age (APA, 2000; Garber, Martin, & Keiley, 2002), gender (Fives, Kong, Fuller, & DiGiuseppe, 2011; Moksnes, Moljord, Espnes, & Byrne, 2010), ethnicity (Minsky, Petti, Gara, Vega, Lu, & Kiely, 2006), and socioeconomic status (SES; Curtis, Waters, & Brindis, 2011; van Oort, Ende, Wadsworth, Verhulst, & Achenbach, 2011) are

all associated with the development of psychopathology. Conversely, most of these demographic variables appear to have no to low relationships with life satisfaction and subjective well-being (Gilman & Huebner, 2003; Lent, 2004), although very low SES is associated with lower life satisfaction (Gilman & Huebner, 2003). Important intrapersonal predictors of psychopathology and SWB include global self-esteem (Huebner, Funk, & Gilman, 2000; Moksnes, Moljord, Espnes, & Byrne, 2010), self-concept (Huebner, Funk, & Gilman, 2000, and personality (Caspi, 2000; Garcia, 2011). In terms of environmental factors, stressful events (Orth, Robins, & Meier, 2009), interpersonal relations (Coie, Lochman, Terry, & Hyman, 1992; Hammen, 2009; Hammen, Brennan, & Keenan-Miller, 2008; Huebner, Funk, & Gilman, 2000), and experiences at school (Accordino, Accordino, & Stanley, 2000; Liljeberg, Eklund, Fritz, & Klinteberg, 2011; Suldo, Riley, & Shaffer, 2006) are all significant predictors of youth mental health.

This study addressed the aforementioned gaps in the research with a longitudinal study design in which high school students' mental health status (as determined according to the dual factor model) was identified at two time points separated by one year. Students' demographic characteristics (i.e., age, gender, socioeconomic status, ethnicity), levels of self-esteem and self-concept, personality characteristics (extraversion, neuroticism, conscientiousness, openness to new experiences, agreeableness), quality of interpersonal relationships (with parents, teachers, and peers), schooling experiences (i.e., school connectedness, school achievement), and exposure to stressful events at the first time point were also examined in order to determine which demographic, intrapersonal, and environmental characteristics predict students later

mental health status. Specifically, this study followed-up with the sample of youth that participated in research conducted by Suldo et al. (2011) one year later to answer longitudinal research questions about (a) the stability of students' mental health status in the dual-factor model, and (b) factors that predict stability and change in adolescents' mental health status. Answering these research questions is important given the relevancy of students' mental health status (as yielded in the dual-factor model) to academic and social outcomes (Antaramian, Huebner, Hills, & Valois, 2010; Eklund, Dowdy, Jones, & Furlong, 2011; Greenspoon & Saklofske, 2001; Suldo, Thalji, & Ferron, 2011; Suldo, Thalji, Frey, McMahan, Chappel, & Fefer, 2011; Suldo & Shaffer, 2008). Understanding the factors that predict later mental health status would inform school professionals' prevention and intervention efforts aimed at promoting students' complete mental health.

Definition of Key Terms

Dual-factor model. This model conceptualizes mental health as including indicators of both psychopathology and subjective well-being (SWB). In this approach, it is presumed that four different mental health statuses exist: complete mental health (average to high SWB and low psychopathology), symptomatic but content (average to high SWB and high psychopathology), vulnerable (low SWB and low psychopathology), and troubled (low SWB and high psychopathology). The current study adapted the terminology and methods of group classification offered by Suldo and Shaffer (2008).

Psychopathology. Psychopathology refers to the presence of broad-band syndrome clusters, specifically internalizing problems (e.g., depression, anxiety) and externalizing problems (e.g., anger/aggression, hyperactivity, conduct problems; American Psychiatric Association [APA], 2000). Internalizing concerns are generally

characterized as problems based on “overcontrolled” symptoms, meaning that a person is trying to maintain maladaptive control over their internal emotions and cognitions. Externalizing problems are thought to stem from “undercontrolled” symptoms, or poor self-regulation (Merrell, 2008).

Subjective well-being. Subjective well-being (SWB) is the scientific term for happiness. Three different, but related, constructs comprise SWB: life satisfaction, positive affect, and negative affect (Diener, 2000). Life satisfaction refers to both global and domain-specific (school, family, friends) judgments of one’s life. Positive affect involves experiencing pleasant emotions and moods, such as interested, proud, and delighted. Conversely, negative affect involves experiencing unpleasant emotions and moods, for example, lonely, sad, and frightened. A person with high SWB would report high satisfaction with his or her life and experience more frequent positive affect in relation to negative affect.

Demographic predictors. In the current study, demographic predictors of students’ mental health was conceptualized as four discrete characteristics (i.e., age, gender, ethnicity, and socioeconomic status), assessed via student self-report on a demographic questionnaire.

Intrapersonal predictors. Intrapersonal predictors of students’ mental health in the current study refer to within-student circumstances that are considered to be personal characteristics. The seven intrapersonal predictors in this study are: global self-esteem, academic self-concept, extraversion, openness to new experiences, conscientiousness, neuroticism, and agreeableness, measured via student self-report on three psychometrically sound instruments.

Environmental predictors. Environmental predictors of students' mental health in the current study include students' school experiences, interpersonal relationships, and stressful life events. Five indicators in these areas (relationships with parents, teachers, and peers, school connectedness, and stressful life events) were measured via student self-report on surveys with adequate support for reliability and validity. One indicator (i.e., school achievement) was measured via school records.

Purpose of Current Study

This study used a longitudinal design to determine the stability of students' mental health status in the dual-factor model, as well as to identify the demographic, intrapersonal, and environmental factors that predict stability and change in adolescents' mental health status across one year.

The specific research questions addressed in this study are as follows:

1. To what extent is mental health, as defined by categories yielded in the dual-factor model, stable in high school students across a 1-year period?
2. Which initial (Time 1) demographic, intrapersonal, and environmental factors predict which students consistently have Complete Mental Health?
3. Which initial (Time 1) demographic, intrapersonal, and environmental factors predict which students are consistently Troubled?
4. Which initial (Time 1) demographic, intrapersonal, and environmental factors predict which students who begin (at Time 1) with a partial mental health profile (i.e., Symptomatic but Content, Vulnerable) become (at Time 2)
    a. Complete Mental Health?

b. Troubled?

Contributions to the Literature

To date, only one study has examined the dual-factor model in high schools students (Suldo, Thalji, Frey, McMahan, Chappel, & Fefer, 2011), and only one study has investigated the stability of the dual-factor model (Kelly, Hills, Huebner, & McQuillin, 2012) albeit in middle school students. No study has examined the stability of high school students' mental health status (as defined by the dual factor model), or the predictors of later mental health status. The current study contributes to the literature by providing the first examination of the stability of mental health groups from the dual-factor model in high school students. Additionally, this study provides additional insight into the factors which predict students' stability and movement across groups over time. Such information is useful for school-based mental health professionals' prevention and intervention work. For example, knowledge of the factors that predict which students consistently have Complete Mental Health guides efforts to promote optimal mental health. Furthermore, understanding the factors which predict which students move from partial mental health (i.e., students in the Vulnerable or Symptomatic but Content) to Complete Mental Health versus experiencing declines in mental health (i.e., Troubled) could inform interventions and supports for these students.

Chapter 2: Review of the Literature

This chapter reviews literature pertinent to the current study. First, modern approaches to defining mental health are discussed. Next, traditional conceptualizations of mental health are reviewed, followed by a discussion of models which include both positive and negative indicators to define mental health. Then, correlates and predictors of adolescents' functioning in different domains and future mental health status are presented. Finally, the stability of adolescent mental health is discussed.

Modern Approaches to Defining Mental Health

Historically, psychology has defined "mental wellness" as the absence of psychopathology (Maddux, 2005). Psychopathology refers to both internalizing disorders (e.g., depression, anxiety) and externalizing disorders (e.g., conduct disorder, attention-deficit/hyperactivity disorder). Traditional mental health diagnosis is defined by the presence or absence of internalizing or externalizing disorders or associated symptoms. Therefore, most research on adolescent psychological functioning has focused on a negative, symptom-based definition of mental health. Under this conceptualization, if an adolescent does not meet criteria for a particular disorder, he or she is considered subclinical and no treatment or intervention would follow. With traditional assessments of psychopathology, mental health becomes assumed in the absence of mental illness.

This exclusive focus on psychopathology ignores positive factors and markers of well-being. Over the past decade, there have been calls for a paradigm shift in the field of psychology toward a more comprehensive conceptualization of mental health that

includes markers of well-being (Diener, 2000; Seligman & Csikszentmihalyi, 2000). Recent research suggests that an absence of psychopathology does not equate with complete mental health and that wellness and psychopathology are not on opposite poles of the same continuum (Keyes, 2006). Little attention has been given to the outcomes of vulnerable youth who may be at-risk for developing problems in the future (students who do not meet criteria for psychological disorders but report low levels of happiness or poor quality of life). Furthermore, not all youth with clinical levels of psychopathology report low levels of happiness or poor quality of life. Research demonstrates that the best functioning youth have both an absence of psychopathology and high levels of happiness (Greenspoon & Saklofske, 2001; Suldo & Shaffer, 2008).

A movement in psychology termed "positive psychology" (Seligman & Csikszentmihalyi, 2000) conceptualizes mental health as the presence of strengths, virtues, and happiness rather than considering mental health as simply the absence of mental illness. Subjective well-being (SWB) is the scientific term for happiness. Three different, but related, constructs comprise SWB: life satisfaction, positive affect, and negative affect (Diener, 2000). Life satisfaction refers to both global and domain-specific (school, family, friends) judgments of one's life. Positive affect involves experiencing pleasant emotions and moods, such as interested, proud, and delighted. Conversely, negative affect involves experiencing unpleasant emotions and moods, for example, lonely, sad, and frightened. A person with high SWB would report high satisfaction with his or her life and report experiencing high levels of positive affect and low levels of negative affect.

Life satisfaction. Life satisfaction is the cognitive component of subjective well-being (Diener, Suh, Lucas, & Smith, 1999). Life satisfaction can be considered from a global perspective or from a domain-specific (e.g., friends, family, school) perspective (Huebner, 2004). Multiple measures have been developed to assess levels of life satisfaction in adolescents, including the Multidimensional Students' Life Satisfaction Scale (MSLSS; Huebner, 1994a), Students' Life Satisfaction Scale (SLSS; Huebner, 1991a), and Quality of Life Profile-Adolescent Version (QOLP-Q; Raphael et al., 1996).

Youth life satisfaction judgments reflect their cognitions and beliefs in addition to life experiences (Ash & Huebner, 2001). Adolescents' reports of life satisfaction are moderately stable. When using the SLSS with adolescents, one-year coefficients of.53 (Huebner, Funk, & Gilman, 2000) and.56 (Suldo & Huebner, 2004) have been found. The moderate stability over time suggests that life satisfaction is amenable to change, and increasing life satisfaction may be possible for adolescents who currently report low levels.

Life satisfaction is associated with positive adolescent adjustment in the academic, social, and cognitive domains, and previous research suggests that life satisfaction can act as a protective factor against aversive outcomes. Life satisfaction relates to superior attitudes towards school, grade point average, participation in extracurricular activities, and lower rates of problematic classroom behavior (Gilman & Huebner, 2006; Suldo, Shaffer, & Riley, 2008). Suldo and Huebner (2005) demonstrated how valuable positive life satisfaction can be by creating three groups in a sample of middle and high school students based upon their life satisfaction reports: very high (top 10%), average (middle 25%), and very low (lowest 10%). Students with the very highest

life satisfaction showed the best adjustment, with fewer internalizing and externalizing problems, higher emotional, social, and academic self-efficacy, and higher levels of perceived social support from parents, teachers, classmates and friends, as compared to students with average and very low life satisfaction.

Preliminary research suggests that high levels of life satisfaction can also act as a protective factor. For instance, Huebner, Funk, and Gilman (2000) discovered that adolescents' life satisfaction reports predicted their ratings on several clinical and adaptive scales on the Behavior Assessment System for Children- Self-Report of Personality (BASC-SRP; Reynolds & Kamphaus, 1992) one year later. Specifically, global life satisfaction predicted the following clinical scales: Depression (r = .39), Anxiety (r = -.33), Social Stress (r = -.50), Relations with Parents (r = .38), and Self-Esteem (r = .22). Such findings suggest that positive life satisfaction leads to better functioning, while low life satisfaction is related to later psychopathology. Providing additional evidence for the protective nature of life satisfaction, Suldo and Huebner (2004) found that students who reported initial high levels of life satisfaction did not develop additional externalizing behavior when faced with stressful life events, such as divorce, death in the family, or moving to a new city. Such findings provide a rationale for the need to learn more about life satisfaction and its potential role as a protective factor for adolescents.

Positive and negative affect. Affect refers to the moods and emotions people feel in response to events in their lives (Diener, Suh, Lucas, & Smith, 1999). Though positive and negative affect both refer to these moods and emotions (and are significantly correlated, r = -.25; Reschly, Huebner, Appleton, & Antaramian, 2008), they are

considered to be two independent factors rather than opposite ends of a continuum. Thus, it is possible for people who experience frequent positive affect to also experience negative emotions.

Positive and negative affect is generally measured by asking adolescents to rate their typical, average feelings. The Positive and Negative Affect Scale for Children (PANAS-C; Laurent et al., 1999) is the most widely used measure for youth in sixth grade and above. Other measures include the Internalizing Symptoms Scale for Children (Merrell & Walters, 1998) and the Affect and Arousal Scales (AFARS; Chorpita, Deleiden, Moffit, Yim, & Umemoto, 2000).

Over time, positive affect has shown modest but significant declines in students across grades 8 to 11 (Weinstein, Mermelstein, Hedeker, & Flay, 2007) and tends to stabilize in grade 10 (Larson, Moneta, Richards, & Wilson, 2002). In contrast, negative affect is relatively stable over time (Weinstein et al., 2007). Noting that depressive mood and symptoms increase during adolescence (Garber, Keiley, & Martin, 2002), Weinstein and colleagues surmised that this trend may partially stem from diminished levels of positive affect, rather than increases in negative affect.

Positive and negative affect are associated with important academic, social, and cognitive outcomes in adolescents. Reschly and colleagues (2008) illustrated the role of positive and negative affect in students' engagement and learning at school. In a sample of 293 middle and high school students, significant, positive correlations emerged between positive affect and academic engagement (i.e., teacher-student relationships, control and relevance, future aspirations and goals, and family support for learning) while the opposite relationships were shown with negative affect. Additionally, significant,

positive correlations were found between positive affect and adaptive coping strategies (i.e., seeking social support, self-reliance/problem solving), though negative affect was unrelated to coping. In terms of social adjustment, positive affect is linked to greater peer and family support while negative affect has the opposite relationship (Weinstein, Mermelstein, Hedeker, Hankin, & Flay, 2006). Martin and Huebner (2007) found middle school students' positive affect was associated with greater receipt of prosocial peer behaviors while negative affect co-occurred with more frequent overt and relational victimization.

In summary, positive emotions relate to positive outcomes for youth while negative emotions relate to aversive outcomes. In the next section, the traditional approach to defining mental health, which generally ignores positive indicators of wellness, will be discussed as it is the more widely utilized approach to psychological conceptualization and assessment.

Traditional Approach to Defining Mental Health

Psychology has traditionally defined mental health as the absence of psychopathology. Psychopathology refers to the presence of broad-band syndrome clusters, specifically internalizing disorders (e.g., depression, anxiety) and externalizing disorders (e.g., anger/aggression, hyperactivity, conduct problems; American Psychiatric Association [APA], 2000). These two sets of behavioral, social, and emotional problems are identified by the behavioral dimensions approach, which entails measuring behavior and statistically analyzing the symptoms (Merrell, 2008a). The *Diagnostic and Statistical Manual for Mental Disorders (DSM)* is also used to categorize behavioral, social, and emotional problems. Though the current edition of the DSM (DSM-IV-TR, APA, 2000)

defines a mental disorder as “a clinically significant behavioral or psychological syndrome or pattern that occurs in an individual and that is associated with present distress (e.g., a painful symptom) or disability (i.e., impairment in one or more important areas of functioning) or with a significantly increased risk of suffering death, pain, disability, or an important loss of freedom” (p. xxxi, APA) and provides detailed descriptions for each identified mental disorders, there is no definition of mental *health*. With this system, one is assumed to be mentally healthy if he or she lacks the criteria for a disorder.

Research on prevalence rates of mental disorders, using this criteria, show that approximately 20% of school-age children are likely to experience mental health problems (U.S. Department of Health and Human Services, 1999), and at least one in five adolescents meets criteria for a mental disorder (Merikangas, He, Burstein, Swanson, Avenvoli, Cui, et al., 2010). Aversive outcomes are associated with mental disorders, including increased likelihood for academic underachievement (McLeod & Fettes, 2007), school drop-out (Porche, Fortuna, Lin, & Alegria, 2011), substance abuse (Ya-Fen, Dennis, & Funk, 2008), and arrest (Constantine, Petrila, Andel, Givens, Becker, Robst et al., 2010). Despite the need, only about a third of youth experiencing mental health problems receive treatment (Whelley, Cash, & Bryson, 2003).

Internalizing disorders. Internalizing disorders are generally characterized as problems based on “overcontrolled” symptoms, meaning that a person is trying to maintain maladaptive control over their internal emotions and cognitions. Given that internalizing problems involve internal states and subjective perceptions, self-report is generally the preferred method for assessing these types of problems (Merrell, 2008a).

Depression and anxiety are the two most prevalent internalizing problems in youth (Merrell, 2008b). It is estimated that approximately 20% of youth will experience a depressive or anxiety disorder (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003). Costello, Egger, and Angold (2005) reviewed the results of prevalence studies of psychiatric disorders in children and adolescents ages 5-17 and determined median estimates for the following specific anxiety disorders: 3% agoraphobia, 3% simple phobia, 3% separation anxiety, 3% social anxiety, 2% generalized anxiety disorder, and 1% posttraumatic stress disorder. The median estimate for major depressive disorder was 4% (Costello et al., 2005). As discussed next, both types of disorders are associated with diminished outcomes.

The most common symptoms of anxiety disorders include: negative and unrealistic thoughts, excessive worries, misinterpretations of symptoms and events, panic attacks, obsessions and/or compulsive behavior, and hypersensitivity to physical cues (Merrell, 2008b). Adolescent anxiety disorders are related to social skill deficits, poor peer relations, drug abuse, alcohol abuse, and academic underachievement, as well as additional symptoms of anxiety and depression in adulthood (Blumenthal, Leen-Feldner, Frala, Badour, & Ham, 2010; Erath, Flanagan, & Bierman, 2007; Woodward & Fergusson, 2001). A study conducted by Ameringen and colleagues (2003) exemplifies the detrimental impact anxiety can have on adolescents' functioning. Ameringen, Mancini, and Farvolden (2003) administered questionnaires to a clinical sample of 201 participants diagnosed with an anxiety disorder, ranging in age from 18 to 65 years (M = 34.84, SD = 10.62), to determine how anxiety impacted their school functioning. Approximately 49% of participants reported dropping out of school and 24% of those

identified their anxiety as the primary cause (i.e., “feeling too nervous in school and in class”).

The most common symptoms of affective/depressive disorders in youth include: depressed mood or excessive sadness, loss of interest in activities, sleep problems, psychomotor retardation or agitation, fatigue or lack of energy, feelings of worthlessness or guilt, difficulty thinking or making decisions, preoccupation with death, irritability, physical or somatic complaints, and failure to make expected weight gains (Merrell, 2008b). Adolescent depression is also associated with multiple impairments in social, academic and cognitive functioning, including lower levels of peer support, social functioning, family functioning, academic engagement, and grade point average, and higher levels of anxiety, hyperactivity, aggression, and drug use (Jaycox, Bradley, Paddock, Miles, Chandra, Meredith et al., 2009). Humensky and colleagues (2010) examined the school performance of 83 adolescents identified as having sub-threshold levels of depressive symptoms and found that increased levels of depressive symptoms were inversely associated with school performance (i.e., achievement, homework completion, concentration in class, peer interactions, attending class). In follow-up interviews, adolescents attributed their school struggles to their negative thinking, which they said led to procrastination and ultimately poor academic performance, which in turn led to more negative thinking. Internalizing disorders in youth tend to persist for long periods of time, from two to five years (Merrell, 2008b).

Externalizing disorders. Externalizing disorders are thought to stem from “undercontrolled” symptoms, or poor self-regulation (Merrell, 2008a). Attention deficit/hyperactivity disorder (ADHD), conduct disorder, and oppositional defiant

disorder are common externalizing problems in youth; approximately 3% of youth are affected by ADHD, 4% by conduct disorder, and 4% by oppositional defiant disorder (Costello, Egger, & Angold, 2005). Unlike with internalizing disorders, symptoms of externalizing disorders are easily observed, and therefore teacher or parent report (e.g., someone other than the student) of the frequency of a student's deviant behaviors are commonly used to measure externalizing problems in youth (Merrell, 2008b).

The most common symptoms of conduct disorder in youth include: aggression to people and animals, destruction of property, deceitfulness or theft, and serious violations of rules. Conduct problems in adolescence are related to drug use, poor relations with peers, poor relations with parents, and academic underachievement (Barnow, Lucht, & Freyberger, 2005; Capaldi & Stoolmiller, 1999; Farhat, Simons-Morton, & Luk, 2011). Furthermore, adolescents who display aggressive and antisocial behavior associated with conduct disorder face an increased risk for future adjustment problems in adulthood, including poor mental health, substance abuse, financial problems, unemployment, and unexpected pregnancies (Capaldi & Stoolmiller, 1999; Moffitt, Caspi, Harrington, & Milne, 2002).

The most common symptoms of oppositional defiant disorder include: defiance, disobedience, hostility, irritability, and anger. Oppositional defiant disorder is associated with higher rates of comorbid psychiatric disorders (including ADHD, major depression, bipolar disorder, and anxiety disorders), poor social functioning at school, and negative interactions with peers, siblings, and parents (Greene, Biederman, Zerwas, Monuteaux, Goring, & Faraone, 2002). Oppositional defiant disorder in adolescence is also associated with poor functioning in young adulthood, including anxiety and depressive disorders

(Copeland, Shanahan, Costello, & Angold, 2009; Rowe, Costello, Angold, Copeland, & Maughan, 2010), antisocial behavior (Langbehn, Cadoret, Yates, Troughton, & Stewart, 1998), and fewer years of schooling (Farmer, Seeley, Kosty, & Lewinsohn, 2009).

The core symptoms of ADHD are inattention (e.g., failing to sustain attention, being easily distracted and forgetful, and failing to follow through on directions), hyperactivity (e.g., fidgeting, difficulty remaining still, talking excessively), and impulsivity (e.g., blurting out, interrupting others). These symptoms negatively impact the academic, social, and behavioral functioning of youth with ADHD (DuPaul & Stoner, 2003). For example, students with ADHD are more likely than their peers to underachieve in the classroom, be bullied by their peers, and react to situations and problems aggressively (Barkley, Fischer, Edelbrock, & Smallish, 1990; Cantwell & Baker, 1991; Stormont, 2001; Unnever & Cornell, 2003). The symptoms of ADHD also contribute to a higher likelihood of inappropriate social behaviors, which in part explains why students with ADHD are more disliked than their typical peers (Hinshaw, Zupan, Simmel, Nigg, & Melrick, 1997).

Taken together, previous research indicates that the presence of internalizing and externalizing disorders in youth is linked to aversive functioning and outcomes. Not only are adolescents with these symptoms likely to experience poor adjustment in the present, but they also face increased likelihood for negative outcomes in the future. The next section presents models which include both positive and negative indicators of mental health.

Models Including SWB and Psychopathology in Defining Mental Health

A mental health continuum. Keyes (2002) proposed defining mental health as "a syndrome of symptoms of positive feelings and positive functioning in life. . . . Whereas the presence of mental health is described as flourishing, the absence of mental health is characterized as languishing in life" (p. 208). In this conceptualization, persons with high levels of well-being experience complete mental health and are considered to be flourishing, while those with low levels of well-being experience incomplete mental health and are languishing. By assuming that three factors (emotional, psychological, and social well-being) comprise mental health, Keyes (2002) devised a diagnostic criteria for mental health: individuals in the lower percentiles on at least one of two measures of emotional well-being (i.e., overall life satisfaction and positive affect), and low on six or more measures of psychological (i.e., how well an individual likes him or herself) and social well-being (i.e., how well an individual feels accepted by and part of society) are deemed languishing. Conversely, individuals in the upper percentile on one of the two measures of emotional well-being and six or more of the 11 scales of positive functioning are deemed flourishing. Keyes (2002) stated that this criteria was designed to mimic that which is used to diagnosis major depressive disorder, in which individuals must display more than half of the total symptoms of depression. Individuals who do not meet criteria for neither languishing nor flourishing are deemed moderately mentally health. Keyes applied these criteria to a sample of 3,032 adults ages 25 to 74. Participants completed measures of the presence of emotional well-being (e.g., positive affect and overall subjective well-being), psychological well-being (self-acceptance, positive relations with others, personal growth, purpose in life, environmental mastery, and autonomy), social

well-being (social acceptance, social actualization, social contribution, social coherence, and social integration), depressive symptoms, and physical and mental health. Results revealed that 18.1% of adults were flourishing, 65.1% were moderately mentally healthy, and 16.8% were languishing. In the overall sample, 14.1% met criteria for a major depressive episode. Surprisingly, not all participants who experienced depression were languishing nor were all languishing adults depressed; 28% of those languishing, 13.1% of those with moderate mental health, and 4.9% of those flourishing had major depression. Adults who were flourishing were 2.1 times less likely to have major depression than those with moderate mental health and 5.7 times less likely than those who were languishing. Keyes noted that this finding suggested that the presence of mental health could be a protective factor against depression. Other results showed that flourishing and moderately mentally healthy adults reported superior emotional and physical health as compared to languishing adults, with flourishing adults also reporting fewer limitations of daily living than those who were moderately mentally healthy or languishing. Findings from this study emphasize that, although mental illness and mental health are related, they are separate constructs. Focusing exclusively on mental illness ignores those individuals who are languishing despite lacking psychopathology.

Keyes (2006) applied this mental health continuum concept to adolescents. A sample of 1,234 youth ages 12 to 18 years old were administered a 12-item subjective well-being measure adapted from one used with adults (Keyes & Magyar-Moe, 2003) to measure emotional (e.g., *How often in the past month have you felt happy?*), psychological (e.g., *How often did you feel that you had experiences that challenged you to grow or become a better person?*), and social well-being (e.g., *How often in the past*

month did you feel that you belonged to a community like a social group, your school, or your neighborhood?). Response options were *Never, Once or twice, About once a week, Two or three times a week, Almost every day,* and *Every day*. Participants also completed the Children's Depression Inventory (CDI; Kovacs, 1992), a global self-concept scale (Marsh, 1990), and a four item scale developed by the author to measure how often participants felt included, happy, and safe at school. To measure conduct problems, participants answered questions to indicate how often they had skipped school, been arrested, smoked cigarettes, smoked marijuana, drank alcohol, or used inhalants in the past month.

Keyes employed similar criteria previously used with adults (Keyes, 2002) to determine mental health diagnosis. Youth were classified as flourishing if they reported experiencing at least one of the three symptoms of emotional well-being and at least five of the nine symptoms of positive functioning *almost every day* or *every day*. Youth were classified as languishing if they experienced at least one symptom of emotional well-being and at least five symptoms of positive functioning *once or twice* or *never*. Youth who did not meet criteria for flourishing or languishing were categorized as moderately mentally healthy (that is, they experienced a symptom of well-being *about once a week* or *two or three times a week*).

Results indicated that less than half of youth were flourishing. Significant age differences were found. Almost half of youth aged 12 to 14 years old were flourishing (48.8%), while 45.2% were moderately mentally healthy and 6.0% were languishing. Conversely, the majority of youth aged 15 to 18 years old were moderately mentally health (54.5%), only 39.9% were flourishing, and 5.6% were languishing. The best

functioning was associated with flourishing status. Specifically, flourishing youth had statistically significant fewer depressive symptoms and conduct problems, felt close to more people, and had higher levels of global self-concept and feelings of school integration than youth who were moderately mentally healthy or languishing. Languishing youth had the worst functioning on all measures. Youth classified as moderately mentally healthy had nearly three times as many depressive symptoms, more conduct problems, lower levels of self-concept, fewer feelings of school integration, and fewer people they felt close to than flourishing youth. These findings indicate that flourishing in adolescence is associated with the most favorable functioning and strengthens the argument that mental health is not simply the absence of mental illness as adolescents who lacked symptoms of pathology were not necessarily flourishing or experiencing the best outcomes. Given this study's cross-sectional design, additional research is necessary to determine whether positive mental health causes or is the consequence of these desirable outcomes.

Dual-factor model. Emerging research has proposed integrating measures of psychopathology and SWB into one model of mental health. In this approach, it is presumed that four different mental health statuses exist; these groups are summarized in Figure 1. This model identifies two groups (one with low SWB and high psychopathology, and one with low SWB and low psychopathology) generally overlooked in traditional definitions of mental health.

	High Subjective Well-Being	Low Subjective Well-Being
High Psychopathology	*Symptomatic but Content Youth* (also termed *Externally Maladjusted* and *Ambivalent)*	*Troubled Youth* (also termed *Distressed)*
Low Psychopathology	*Complete Mental Health Youth* (also termed *Well-Adjusted)*	*Vulnerable Youth* (also termed *Dissatisfied* and *At-Risk)*

Figure 1. Mental Health Groups Derived from a Dual-Factor Model of Mental Health

Dual-factor model in late childhood. Greenspoon and Saklofske (2001) first investigated the presence and utility of a dual-factor model on mental health. Specifically, they integrated SWB and psychopathology into one model to assess the mental health of children and predicted four distinct groups that would emerge: one with high SWB and low psychopathology (termed well-adjusted by the authors), one with low SWB and high psychopathology (distressed), one with low SWB and low psychopathology (dissatisfied) and one with high SWB and high psychopathology (externally maladjusted). Only the well-adjusted and distressed groups are expected in traditional models. The dual factor conceptualization of mental health differs from the traditional assessment approach since high SWB is no longer assumed in the absence of psychopathology. A sample of 407 children in grades 3 through 6 (age M = 10.5 years, SD = 0.70 years) in Canada completed the following self-report measures: Assessment of Interpersonal Relations (AIR; Bracken, 1993) , Abbreviated Form of the Revised Junior Eysenck Personality Questionnaire (JEPQR; Francis, 1996), Self-Perception Profile for Children (SPPC; Harter, 1985), the MSLSS, and the BASC-SRP. Students' teachers completed the Externalizing composite of the Behavioral Assessment System for Children-Teacher Rating Scales (BASC-TRS; Reynolds & Kamphaus, 1992) and the EAS Temperament

Survey for Children: Teacher Ratings (EAST; Buss & Plomin, 1984). In their analyses, Greenspoon and Saklofske (2001) used published norms that were available (i.e., for the BASC and AIR) and created local norms (converted raw scores to *t*-scores) for measures lacking published norms. Citing evidence that boys and girls differ on many of the constructs examined, the authors used gender–specific norms for all measures except the MSLSS.

Using a series of discriminant function analyses, with group membership as the classification variable, four distinct groups of mental health were yielded. The presence of these four distinct groups illustrate that: (a) psychopathology can occur simultaneously with high life satisfaction, and (b) the absence of psychopathology can occur simultaneously with low life satisfaction. Important differences in interpersonal relations, scholastic competence, emotionality, self-worth, locus of control, and sociability were found among the four groups. As Greenspoon and Saklofske (2001) note, if only pathology had been examined, well-adjusted youth and dissatisfied youth would have been indistinguishable from one another, and the differences in interpersonal relations and scholastic competence undiscovered. Similarly, distressed youth and externally maladjusted youth would have been classified into one group and the differences in emotionality, self-worth, locus of control, and sociability overlooked.

The first classification focused on well-adjusted youth, distressed youth, and dissatisfied youth with the BASC-SRP composite (which displayed the best classification for the dissatisfied group) for psychopathology and the MSLSS Total score for SWB. Findings from tests of the significance of differences in group means indicated that well-adjusted youth reported better interpersonal relations and more confidence in their

scholastic competence than distressed and dissatisfied youth. Well-adjusted youth were also more likely to have an internal locus of control than the other two groups. However, dissatisfied youth and well-adjusted youth had similar levels of neuroticism, which were higher than that of distressed youth.

The second classification focused on well-adjusted youth, distressed youth, and externally maladjusted youth as defined by the Hyperactivity subscale of the BASC-TRS (which displayed the best classification for externally maladjusted youth) for psychopathology and MSLSS Total Score for SWB. Again, two discriminant functions were calculated and independent samples *t*-tests were performed as follow-up analyses. Findings included that distressed youth reported the lowest levels of global self-worth, highest levels of emotionality, highest levels of external locus of control, and poorest behavior conduct. Notably, externally maladjusted youth were more sociable than both well-adjusted and distressed youth. The low levels of neuroticism and the internal locus of control found in well-adjusted youth and dissatisfied youth (as compared to distressed youth) lead the authors to suggest that these constructs could be acting as a protective factor against psychopathology. Additionally, the authors suggest that the poor interpersonal relations and low self-concept of scholastic competence (found in distressed youth) could be related to the development of low SWB or high psychopathology. In sum, findings of this study establish the utility of a dual-factor approach to mental health assessment, and suggest possible predictors for youth mental health status

Dual-factor model in early adolescence. Suldo and Shaffer (2008) further explored the dual-factor model by examining its existence in middle school students. Three hundred and forty-one students in grades 6 through 8 (age M = 12.96 years; SD =

0.97 years) completed self-report measures of SWB, internalizing symptoms of psychopathology, academic and social functioning, and physical health. Specifically, participants completed the SLSS and the PANAS-C to assess SWB; the Youth Self-Report Form of the Child Behavior Checklist (YSR; Achenbach & Rescorla, 2001) to assess internalizing psychopathology and social problems; the Child and Adolescent Social Support Scale (CASSS; Malecki & Demarary, 2002) to assess perceptions of social support from parents, teachers, and classmates; the School Attitude Assessment Survey—Revised (SASS-R; McCoach & Siegle, 2003) to assess perceived academic abilities, motivation for school, valuing of school, and attitude toward school; and the Child Health Questionnaire—Child Form (CHQ-CF87; Landgraf, Abetz, & Ware, 1999) to assess physical health. Participants' grade point average (GPA), scores on statewide tests of achievement, and attendance history were obtained from school records. Teachers familiar with the students also completed the Teacher Report Form of the Child Behavior Checklist (TRF; Achenbach & Rescorla, 2001) to assess participants' externalizing psychopathology.

To assign participants into the four possible groups, Suldo and Shaffer (2008) first classified participants based on their levels of psychopathology. Scores in the "at risk" or "clinically significant" range (as defined by published, gender-specific norms for the YSR and the TRF) on either self-reported internalizing symptoms or teacher reported externalizing symptoms were labeled as high psychopathology. Next, participants were assigned as having average/high or low SWB. An aggregate SWB variable was created by standardizing and summing scores for life satisfaction and positive affect and subtracting standardized negative affect scores. Since there are no published norms for

SWB, the researchers identified decision points for high and low SWB based upon the proportion of participants identified as having high or low psychopathology. As 30% of participants met criteria for high psychopathology, a raw SWB score corresponding to the 30th percentile was chosen as the cut point. This cut point allowed for every participant labeled as high psychopathology to also be defined as low SWB. Participants above the 30th percentile on SWB were defined as high SWB and those below were defined as low SWB.

Based on their dichotomized scores on SWB and psychopathology, participants were assigned to one of four mental health groups: 57% were complete mental health (high SWB, low psychopathology), 13% were vulnerable (low SWB, low psychopathology), 13% were symptomatic but content (high SWB, low psychopathology), and 17% were troubled (low SWB, high psychopathology). These four groups are consistent with those identified by Greenspoon and Saklofske (2001). The finding that a sizeable number of youth were in the vulnerable and symptomatic but content categories re-affirms that SWB and psychopathology are not opposite ends of one continuum. Furthermore, Suldo and Shaffer (2008) found important differences in educational functioning, social functioning, and physical health between youth with complete mental health and vulnerable youth as well as between vulnerable and troubled youth, despite similar levels of psychopathology shared by these pairs of subgroups. Youth with complete mental health scored higher on tests of reading skills, had better school attendance, and reported higher perceptions of their academic abilities and value of schooling as compared to the other three groups. Vulnerable youth tended to have better academic functioning than symptomatic but content and troubled youth, but the

two latter groups did not differ from one another in educational achievement. Regarding social functioning, youth with complete mental health reported fewer social problems and greater social support from classmates and parents than vulnerable youth. Additionally, symptomatic but content youth reported fewer social problems and greater social support from classmates, parents, and teachers than troubled youth. On measures of physical health, youth with complete mental health reported better overall health than the other groups, and symptomatic but content youth reported better overall health than troubled youth. In sum, youth with complete mental health had superior academic, social, and physical functioning than their peers who also had low levels of psychopathology but without high levels of SWB. This finding underscores that both low psychopathology and high SWB are necessary for optimal functioning. Furthermore, symptomatic but content youth had interpersonal strengths not found in troubled youth, suggesting that high SWB protected these youth from experiencing the worst outcomes associated with high psychopathology. All together, these findings demonstrate that not only are SWB and psychopathology different constructs, but additive information is provided by assessing both as outcomes differ as a function of mental health status.

Longitudinal outcomes predicted by a dual-factor model. Suldo, Thalji, and Ferron (2011) were the first research group to examine longitudinal outcomes associated with group membership in a dual-factor model of mental health. The researchers followed-up with 300 of the students investigated in Suldo and Shaffer (2008) to determine how students' mental health status at Time 1 predicted their grades, standardized test scores, attendance, and office discipline referrals one year later (i.e., Time 2). As found in previous studies, youth with complete mental at time one had the

best attendance, grades, and standardized test scores in math at Time 2 compared to the other groups, including vulnerable youth who had similarly low levels of psychopathology at Time 1. Troubled youth showed the worst outcomes at Time 2, with steeper declines in grade point averages than youth in the complete mental health and vulnerable groups; however, symptomatic but content youth did not experience greater declines in GPA than the groups without high levels of psychopathology. This study's findings illustrate again that both SWB and low psychopathology are important for youth to experience the best outcomes. Additionally, SWB appears to offer some protection to youth with high psychopathology to prevent them from suffering the worst academic outcomes.

Other applications of a dual-factor model. Since Suldo and Shaffer's (2008) publication, multiple research teams have attempted to replicate findings in different samples of youth in middle school (Antaramian, Huebner, Hills, & Valois, 2010), high school (Suldo, Thalji, Frey, McMahan, Chappel, & Fefer, 2011; Lyons, Huebner, Hills, & Shinkareva, 2012), and college (Eklund, Dowdy, Jones, & Furlong, 2011). These recently conducted studies have tested a dual-factor model and provided further evidence for the value of including both positive and negative measures of mental health.

Antaramian, Huebner, Hills, and Valois (2010) applied the dual-factor model to a sample of 746 students in grades 7 and 8 to investigate differences in students' academic engagement across the four mental health groups. Participants' SWB was assessed via the SLSS and the PANAS-C. Psychopathology was assessed with the internalizing and externalizing subscales of the Self-Report Coping Scale (SRCS; Causey & Debow, 1992). Participants also completed measures of behavioral, emotional, and cognitive

engagement, and environmental facilitators of engagement. School records were examined for students' grades. Students were assigned into one of the four mental health groups based first on their psychopathology and secondly on their SWB. The authors defined low/average psychopathology as *t*-scores below 60 on both internalizing and externalizing subscales of the SRCS. Conversely, *t*-scores of 60 or above on either subscale constituted high psychopathology. SWB scores were calculated by summing standardized life satisfaction and positive affect scores and subtracting negative affect scores (as performed in Suldo & Shaffer, 2008). *T* –scores above 40 were deemed average/high SWB while *T* –scores 40 and below were considered low SWB.

Results indicated that the proportion of participants in each of the four groups was as follows: 66.9% "positive mental health" (high SWB and low psychopathology), 8.1% vulnerable, 17.3% symptomatic but content, and 7.7% troubled. Mean levels of student engagement differed as a function of group. Specifically, students with positive mental health reported significantly higher levels of school engagement (i.e., more school participation, school belongingness, and investment in school) than any of the other groups, including the vulnerable group who had similarly low levels of psychopathology, indicating that both low psychopathology and high SWB are necessary for the best school engagement. Symptomatic but content youth reported higher levels of school engagement than troubled youth, suggesting that higher levels of SWB protected these youth from experiencing the poorest outcomes. Antaramian and colleagues (2010) concluded that SWB is important to fostering adolescents' school engagement, regardless of psychopathology, as indicated by the positive school engagement of symptomatic but content youth.

Suldo and colleagues (2011) explored the existence of a dual-factor model of mental health in 500 high school students in grades 9-11. To assess SWB, participants completed the SLSS and the PANAS-C. Internalizing psychopathology was measured via self-report on the 2nd edition of the BASC (BASC-2 SRP-A; Reynolds & Kamphaus, 2004). Students' teachers reported on their externalizing behavior via the Teacher Rating Scale Form of the BASC (BASC-2 TRS-A; Reynolds & Kamphaus, 2004). Students also completed measures of physical health, educational functioning, engagement in meaningful activities, social functioning, and identity development, while teachers rated students' leadership and social skills. School records provided information on students' grades and attendance.

Participants' group membership was assigned based on their internalizing and externalizing psychopathology and their SWB and followed the procedures used by Suldo and Shaffer (2008). First, participants were identified as high SWB if either of their internalizing or externalizing composites had a *t*-score of 60 or above; *t*-scores below 60 were deemed average/low psychopathology. Based on these criteria, 26.4% of participants were labeled high psychopathology. Next, composite SWB scores were computed by summing standardized life satisfaction and positive affect, and subtracting negative affect. Since 26.4% of participants were labeled high psychopathology, a cut score corresponding to that percentile of SWB scores was used to separate average/high SWB from low SWB. Students with SWB above this percentile were classified as average/high SWB and those with SWB at or below this percentile were classified as low SWB. This procedure allowed for all participants with high psychopathology to also have low SWB. Participants fell into the four mental health groups with the following

frequency: 62.2% of the sample was identified as complete mental health, 11.4% vulnerable, 11.4% symptomatic but content, and 15.0% troubled.

Group comparisons provided further evidence for the utility of the dual-factor model, as significant differences on outcomes emerged between the complete mental health group and the vulnerable group, as well as between the symptomatic but content group and troubled group. Relative to their vulnerable peers, students with complete mental health had greater physical health; social support from parents, classmates, and teachers; self-concept; self-esteem; engagement in meaningful activities; and positive school-related beliefs. These findings reaffirm that the best outcomes co-occur in the presence of high SWB *and* low psychopathology. Meanwhile, symptomatic but content youth had greater physical health, academic self-perceptions, engagement in meaningful activities, social support (from parents, classmates, and teachers), self-concept, and self-esteem than their vulnerable peers, suggesting that SWB protected these high school students from experiencing the worst outcomes. In sum, this study extended empirical support for the existence and utility of the dual factor model to a new age group—high school students. The current study followed-up with these same participants one year later to answer longitudinal research questions about (a) the stability of students' mental health status in the dual-factor model, and (b) factors that predicted stability and change in adolescents' mental health status.

Lyons, Huebner, Hills, and Shinkareva (2012) also examined the dual-factor model in secondary students. Students (n = 990) in high school and middle school completed the SLSS, the Youth Self-Report of the Child Behavior Checklist (YSR; Achenbach, 1991), and measures of personality, social support, and stressful life events.

Students were first categorized in mental health groups by their psychopathology scores on the YSR internalizing and externalizing scores; students with internalizing or externalizing scores one standardization above the mean were classified as high psychopathology and those with both scores below this cut-off were classified as low psychopathology Then, students with SLSS scores one standardization below the mean were classified as low SWB, and students with scores above this cutoff were classified as high SWB.

To determine the contributions of personality, social support, and stressful life events in classifying students into the four dual-factor model groups, multinomial logistic regression analyses were used. Results showed that students were accurately classified into the four groups above chance based on those variables. The complete mental health group was differentiated from the vulnerable and troubled groups in terms of parental support (with higher levels of parent support, odds increased that students would be identified complete mental health versus the other two groups). Stressful life events also differentiated the complete mental health group from the troubled group (with low levels of stressful events, odds increased that students would be identified complete mental health versus troubled). In terms of personality, higher levels of extraversion and lower levels of neuroticism differentiated the complete mental health group from symptomatic but content and troubled groups. Other personality factors and types of social support (peer, teacher) did not significantly distinguish the groups. Researchers suggested that interventions targeting parental support could increase a student's odds of moving from the vulnerable group to complete mental health.

Eklund, Dowdy, Jones, and Furlong (2011) extended the dual-factor model to a sample of 240 college students between the ages of 18 and 25 years old. Support was again found for the existence of the dual-factor model, as a sizeable proportion of participants were in each of the four groups: 78% "well-adjusted" (high SWB and low psychopathology), 9% "at risk" (low SWB and low psychopathology), 4% "ambivalent" (high SWB and high psychopathology), and 9% "distressed" (low SWB and high psychopathology). Regarding outcomes associated with group membership, the two groups with high SWB (regardless of psychopathology) experienced higher levels of hope and gratitude, prompting the researchers to conclude that building hope and gratitude among college students may act as a buffer or coping mechanism against future clinical problems. Differences between the well-adjusted and at-risk groups include fewer attention problems, and higher levels of hope and gratitude, among the well-adjusted group compared to the at-risk group. The ambivalent group's levels of hope and gratitude, which were higher than the at-risk group, were statistically similar to those of the well-adjusted group.

In sum, a dual-factor model of mental health has been supported in children in elementary school (Greenspoon & Saklofske, 2001), middle school (Antaramian, Huebner, Hills, & Valois, 2010; Suldo & Shaffer, 2008), and high school (Suldo et al., 2011), as well as extended to young adults in college (Eklund, Dowdy, Jones, & Furlong, 2011). Four distinct mental health groups, including two that are overlooked with traditional assessment methods, emerged in all of these studies. Approximately 4 to 17.3% of participants fell in the symptomatic but content classification, showing that high SWB and high psychopathology can co-exist. Additionally, 8.1 to 13% of youth across

samples were identified as vulnerable (low SWB and low psychopathology) supporting the notion that an absence of psychopathology does not ensure the presence of positive subjective well-being. Furthermore, these studies repeatedly demonstrated that the best outcomes are associated with high levels of SWB and low levels of psychopathology (i.e., Complete Mental Health), even when compared to youth with similarly low levels of psychopathology but without the high SWB (i.e., Vulnerable status). Additionally, SWB appeared to serve as a protective factor for youth with high psychopathology, as youth with high SWB and high psychopathology (Symptomatic but Content) tended to fare better than their peers with similar levels of psychopathology but without high SWB (Troubled). Mental health group status also shows relevance for future functioning, with youth with complete mental health experiencing the best academic outcomes one year later (Suldo, Thalji, & Ferron, 2011).

Despite these important findings, there are gaps in this still-growing research base. For example, the stability of youth mental health as classified in this model is unknown. Specifically, research to date has not explored the extent to which individuals retain their group membership over time, or the typical mobility rate between groups. Determining the stability of group membership, the level of movement across groups that may occur, and what factors relate to such movement, would provide insight on how to predict and understand youth mental health.

Predictors of Negative and Positive Indicators of Youth Mental Health

The previous pages illustrated that the mental health status of a given adolescent runs the gamut from excellent (exemplified by terms such as flourishing, complete mental health, or positive mental health) to middle of the road (perhaps best represented

by terms such as vulnerable or partially mentally healthy) to problematic (including those youth with diagnosable mental disorders, or who are deemed troubled due to their symptom clusters). Differences between youth with regard to their mental health status are the result of a complicated interplay of personal characteristics and environmental experiences, including demographic, intrapersonal, and social risk and resilience factors. In this section, literature is summarized that suggests which factors predict or are associated with adolescent mental health, including correlates and predictors of negative indicators of mental health (i.e., psychopathology) and positive indicators of mental health (i.e., subjective well-being). First, demographic variables and their relations to psychopathology and well-being are discussed. Next, intrapersonal factors, such as adolescents' personality, beliefs, and self-esteem, and their associations with psychopathology and well-being are reviewed. Lastly, environmental predictors, such as stressful life events and interpersonal relations, of adolescents' mental health are presented. Of note, the literature on correlates of youth mental health is vast; this section purposefully focuses on recent research with strong designs, such as longitudinal studies.

Demographic predictors of youth mental health. Demographic factors include such discrete characteristics as age, gender, ethnicity, and socioeconomic status. Regarding links between gender and mental health, research indicates that psychopathology is highly related to gender. Specifically, females adolescents have higher rates of internalizing pathology; girls tend to report higher levels of stress (e.g., peer pressure, home life, romantic relationships, school attendance, school performance, adult responsibility, and financial pressure), anxiety, and depressive symptoms than boys (Moksnes, Moljord, Espnes, & Byrne, 2010). Meanwhile, male adolescents are more

likely to develop externalizing disorders, such as attention deficit hyperactivity and conduct disorder (American Psychiatric Association, 2000), and to be perceived as aggressive (Fives, Kong, Fuller, & DiGiuseppe, 2011).

Age is also pertinent to the development of psychopathology, in that older youth experience higher rates of most internalizing problems. In a longitudinal study, significant increases were found in students' depressive symptoms from grade 9 to grade 11, with girls reporting steeper increases over time compared to boys (Garber, Martin, & Keiley, 2002). The transition from middle to high school may be partly responsible for this increase in depression, given the new challenges students in ninth grade face for the first time, including more rigorous curricula and pressure to meet graduation requirements. In a longitudinal study, Benner and Graham (2009) found that, while ninth grade students initially reported preferring high school to middle school, their school liking decreased after ninth grade, and students' self-reports of anxiety and loneliness increased, especially girls'. Other mental health disorders are more prevalent in younger children, namely ADHD and oppositional defiant disorder (APA, 2000).

Students from low socioeconomic backgrounds tend to show higher rates of internalizing and externalizing psychopathology. For example, youth from families with low socioeconomic status (SES), particularly those below the poverty level, are more likely to experience depressive symptoms and distress than adolescents of higher SES (Curtis, Waters, & Brindis, 2011). A longitudinal study following students ages 8-16 for nine years gives support for a similar pattern for externalizing concerns, as low SES significantly predicted externalizing problems such as aggressive behavior and attention problems (van Oort, Ende, Wadsworth, Verhulst, & Achenbach, 2011). Interestingly,

Farrell, Sjbenga, and Barrett (2009) found the opposite relationship for anxiety, as students from high SES schools in their study reported higher levels of anxiety than students from lower SES schools.

Studying differences in rates of psychopathology by youth ethnicity are complicated by the strong relationships between ethnicity and SES. Nevertheless, research has found that African American youth are more likely than Caucasian or Hispanic students to be diagnosed with an externalizing disorder but less likely than these other two groups to be diagnosed with an internalizing disorder (Minsky, Petti, Gara, Vega, Lu, & Kiely, 2006). In a separate study, Angold and colleagues (2002) determined that Caucasian students have higher prevalence rates of depressive disorders and affective/anxiety disorders than African American youth.

Psychopathology also has a hereditary component. When an adolescent has a parent with history of either an externalizing or internalizing disorder, he or she is more at risk for psychopathology (Biederman, Faraone, Mick, Spencer, Wilens, Kiely, et al., 1995; Garber, Martin, Keiley, 2002).

Most demographic variables (e.g., gender, race, age) appear to have no to low relationships with life satisfaction and subjective well-being (Gilman & Huebner, 2003; Lent, 2004). In fact, Huebner and Ash (2001) found the following correlations: age (r = -.05), grade (r = -.03), and gender (r = .00). In contrast, SES has been shown to have an impact on SWB (Ash & Huebner, 2001). Specifically, very low SES is associated with lower life satisfaction; however, once basic needs are met, additional financial resources do not predict greater well-being (Gilman & Huebner, 2003). Instead of directly influencing SWB, it is likely that any influence of demographic variables is moderated by

other factors (Lent, 2004). In his review of research on well-being, Lent (2004) noted that "no single demographic group has a monopoly on happiness" (p. 490).

Looking across the studies of mental health outcomes, it is clear that demographic variables are important predictors of psychopathology, and less related to SWB. Age, gender, ethnicity, and SES are prominent demographic predictors of psychopathology, while only SES shows an association with SWB. This study examined all four variables to determine their relationships with later youth mental health status.

Intrapersonal predictors of youth mental health. Intrapersonal factors refer to within-student circumstances such as personality, beliefs, self-concept, character strengths and virtues, and other attributes that are considered to be personal characteristics. Many such factors have strong relationships with both positive and negative indicators of mental health.

The primary intrapersonal correlates of youth internalizing disorders include negative self-schemas, faulty informational processing or attributional biases, negative expectancies (e.g., helplessness, hopelessness), maladaptive coping strategies, external locus of control, and inhibited temperament (Graber, 2004). For example, low self-esteem co-occurs with symptoms of anxiety and depression (Moksnes, Moljord, Espnes, & Byrne, 2010). Longitudinal research shows negative attribution style (the tendency to make internal, stable, and global attributions for negative events) predicts the development of depressive symptoms in adolescents (Garber, Martin, & Keiley, 2002). In addition to making negative attributions about current events, adolescents with internalizing problems are also more likely to be pessimistic about future events. When Kagan and colleagues (2004) supplied a group of adolescents with a list of future

potential positive and negative events and asked them to explain why the event would or would not happen, adolescents with higher levels of anxiety and depression gave fewer reasons for why the negative events would not happen and more reasons as to why bad things would happen, as compared to a control group. Intrapersonal variables can also act as moderators in the relationships between external events and the development of psychopathology. For instance, relying on maladaptive coping strategies (e.g., avoidance, denial, wishful thinking) in the face of social stress predicted depressive symptoms in adolescents six months later (Calvete, Camara, Estevez, & Villardon, 2011). Similarly, the use of avoidance as a coping strategy when experiencing victimization and violence co-occurs with anxiety (McGee, 2003). Locus of control is also a factor in internalizing problems. Studies have shown that anxious youth perceive lower levels of control over anxious events than their non-anxious peers (Frala, Leen-Fekdner, Blumenthal, & Barreto, 2010), and youth with depressive symptoms are less likely to believe that they can influence events through their own effort (Weisz, Francis, & Bearman, 2010). A longitudinal study demonstrates the importance of inhibited temperament; participants rated as behaviorally inhibited or shy by their parents in early childhood were more likely to experience symptoms of anxiety and depression age at 21 (Bohlin & Hagekull, 2009).

The primary intrapersonal correlates of externalizing problems like aggression and rule-breaking behavior in youth include an uninhibited temperament, impulsiveness, irrational or aggressive beliefs, and maladaptive coping behaviors (Farrington, 2004). In a longitudinal study, Caspi (2000) categorized the temperament of three year old children based on observations of their behavior. Children identified as having an under controlled or uninhibited temperament (restless, impulsive, with attention problems) were rated at

ages 5, 7, 9, and 11 by both their parents and teachers as displaying more externalizing problems than children who were rated as having well-adjusted or inhibited temperaments as toddlers. Furthermore, the under controlled children were more likely to meet criteria for antisocial disorder, engage in antisocial and aggressive behavior, and be convicted of a crime at the age of 21 years old. In addition to uninhibited temperament, aggressive beliefs are also associated with externalizing behavior. Adolescents with irrational beliefs and frustration about rules (e.g., "People shouldn't have to always follow rules and behave") are more likely to be aggressive (Fives, Kong, Fuller, & DiGiuseppe, 2011), while beliefs condoning the use of aggression (e.g., "It's okay to fight," "If you don't fight, others will think you are a loser") in childhood are a risk factor for future aggressive behaviors (Andreas & Watson, 2009). Regarding coping strategies, adolescents with externalizing behavior problems (physical aggression and delinquency) are more likely to use avoidant strategies and less likely to utilize problem-solving strategies to solve or cope with problems (Legault, Anawati, & Flynn, 2006; McGee, 2003).

The primary intrapersonal factors related to SWB in youth include global self-esteem, internal locus of control, and extraversion (Gilman & Huebner, 2003; Suldo, Huebner, Savage, & Thalji, 2011). Adolescents' life satisfaction scores correlate in a positive direction with their ratings of self-esteem (Huebner, Funk, & Gilman, 2000), in particular their global and family-related self-concept beliefs (Dew & Huebner, 1994). Greater life satisfaction also co-occurs with an internal locus of control (i.e., the tendency to believe that events in one's life are the result of their own behavior rather than out of their control; Gilman & Huebner, 2006). Notably, an internal locus of control serves to

mediate the relationships between stressors (both chronic and acute) and adolescents' life satisfaction (Ash & Huebner, 2001). In terms of personality, extraversion and self-directedness co-occur with high levels of life satisfaction and positive affect and low levels of negative affect; meanwhile, neuroticism is associated with low life satisfaction (Garcia, 2011). Furthermore, belief systems involving hope and optimism have been shown to explain nearly a third of the variance in adolescents' levels of life satisfaction and positive affect (Gilman & Huebner, 2006; Morgan, Vera, Gonzelez, Conner, Vacek, & Coyle, 2011). Lastly, in their longitudinal study, Gillham and colleagues (2011) found that the presence of strengths related to interacting with others in a positive manner (e.g., kindness, fairness, teamwork) and an interest in learning (e.g., curiosity, love of learning) in ninth graders predicted higher levels of life satisfaction in tenth grade.

Across the studies of mental health outcomes, the common intrapersonal predictors include temperament/personality, self-esteem, and locus of control. An ideal study would consider baseline (Time 1) levels of all three of these factors as predictors of later mental health status. Since personality was not assessed at the first time point of data collection in the current study, it was assessed at the second time point but still able to be examined as a predictor given the stability of personality in later adolescence, as evidenced in the work of Klimstra, Hale, Raaijmakers, Branje, and Meeus (2009). Klimstra and colleagues (2009) conducted a five-year longitudinal study with 390 Dutch high school students (*M* age = 16.7 years). Participants completed a shortened 30-item Dutch version of Goldberg's Big Five questionnaire (Gerris, Houtmans, Kwaaitaal-Roosen, Schipper, Vermulst, & Janssens, 1998; Goldberg, 1992) annually, which assessed the following five personality dimensions with a 7-point Likert scale ranging

from 1 (*Completely untrue*) to 7 (*Completely true*): extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience. Rank-order stability of the personality dimensions was calculated via Pearson correlations and separated by gender. Correlations for males ranged from .27 (Time 1-Time 2 agreeableness) to .75 (Time 4-Time 5 extraversion), and correlations for females ranged from .52 (Time 1-Time 2 agreeableness) to .86 (Time 4-Time 5 conscientiousness). Klimstra and colleagues also calculated q-correlations for all 1-year between-measurement intervals to examine participants' personality profile similarity over time. These correlations ranged from .63 (Time 1- Time 2) to .77 (Time 3-Time 4) for males and from .73 (Time 1-Time 2) to .82 (Time 4-Time 5) for females.

Also notable, measures of psychopathology (e.g., as assessed by the BASC-2) consider locus of control in the conceptualization of internalizing problems and thus include a locus-of-control in the composite measure of internalizing problems. Therefore, locus of control cannot be separated from internalizing problems and used to predict psychopathology, as it is part of the definition of the outcome. Instead, other interpersonal factors more separable from the internalizing construct were examined as intrapersonal predictors in the current study. These intrapersonal factors include personality (extraversion, agreeableness, conscientiousness, neuroticism, and openness), self-esteem, self-concept, and self-competency beliefs in a central domain of functioning: academic skills.

Environmental predictors of youth mental health. The primary environmental correlates of internalizing disorders include stressful events, negative family interactions, and negative peer interactions (Graber, 2004). Stressful life events, such as loss, divorce,

and bereavement, are believed to lead to increases in internalizing symptoms (Biramaher, Ryan, Williamson, Brent, Kaufman, Dahl et al., 1996). For example, adolescents' self-reports of stressful events (e.g., having injuries that required medical attention, repeated a grade) at age 15 predicted subsequent depression at age 17 (Orth, Robins, & Meier, 2009). In another longitudinal study, students in grades 6 to 9 completed measures of anxiety at two different time points separated by one year. Student reports of stressful life events (e.g., family divorce or separation, serious illness, changing schools) experienced between the two assessments predicted their symptoms of anxiety at the second time point (Aune & Stiles, 2009). Stress associated with academic underachievement, such as experiencing a discrepancy between a student's personal academic standards and their actual grade point average, is also linked to increased levels of depression (Accordino, Accordino, & Stanley, 2000). Given that the majority of adolescents' self-reported stress pertains to interpersonal issues with peers, parents, and romantic partners (Ebata & Moos, 1994; Seiffge-Krenke, 2006), it is logical that interpersonal factors would be relevant to psychopathology in adolescents. Interpersonal stress in one's social life, friendships, romantic relationships, and family relations are all highly associated with depression in adolescents (Hammen, 2009; Hammen, Brennan, & Keenan-Miller, 2008). Higher levels of parent-child conflict are found in students aged 12 to 18 who are depressed (Bradford, Vaughn, & Barber, 2008), and Colonnesi and colleagues (2011) identified a moderate relationship between adolescent anxiety and parent attachment, with ambivalent attachment showing the strongest link to anxiety in their meta-analysis of studies published between 1984 and 2010. In a separate meta-analysis, interparental conflict repeatedly co-occurred with adolescent internalizing problems, whether the parents were

married or divorced (Buehler, Anthony, Krishnakumar, Stone, Gerard, & Pemberton, 1997). Peer relations are also implicated in internalizing problems. In a 30-year longitudinal study, females' peer status in sixth grade predicted their later anxiety and depression, with low popularity predicting higher risk; however, this relationship did not emerge for males (Modin, Ostberg, & Almquist, 2011). Students who avoid interacting with their peers, whether or not they are rejected by them, seem most vulnerable to developing anxiety and depression, and self-perceptions of peer rejection as well as insecure attachments with peers can contribute to depression (Deater-Deckard, 2001). Having at least one close friend can buffer the detrimental impact of peer difficulties (Deater-Deckard, 2001).

The primary environmental correlates of externalizing symptoms such as aggression and rule-breaking behavior include association with deviant peer groups, peer rejection, family conflict, poor parental supervision, and low school attachment (Farrington, 2004). For example, previous research has determined that having a deviant friend predicts an adolescent's externalizing problems one year later (Reitz, Dekovic, Meijer, & Engels, 2006). Longitudinal research also shows peer rejection in childhood predicts adolescent externalizing problems (Coie, Lochman, Terry, & Hyman, 1992). Regarding relationships with family members, higher levels of parent-child conflict characterize youth who engage in antisocial behaviors (Bradford, Vaughn, & Barber, 2008). A meta-analysis conducted by Buehler and colleagues (1997), demonstrated that interparental conflict was linked to adolescent externalizing problems, whether the parents were married or divorced. Juby and Farrington (2001) followed a group of children into adulthood and determined that youth from disrupted families (i.e., youth

were permanently separated from a biological parent before the age of 15) were more likely than youth from intact families to engage in delinquency, but they were not more delinquent than youth from intact high-conflict families. A review article of longitudinal studies identified poor parental supervision as one of the primary predictors of conduct disorder and delinquency, citing other childrearing practices, such as harsh or erratic discipline, a rejecting attitude, and low parental responsiveness as important predictors as well (Murray & Farrington, 2010). Regarding attachment to school, later delinquency is predicted by poor school attachment (i.e., negative feelings about one's school) and poor school commitment (i.e., lack of investment in schoolwork) two years earlier, though this relationship appears stronger for males than females (Liljeberg, Eklund, Fritz, & Klinteberg, 2011). In a sample of 256 adolescents, those with the lowest school grades in the 10th grade showed more externalizing behaviors such as substance use and delinquent acts in the 12th grade as compared to their peers, though this trend was not observed for internalizing behaviors (Ansary & Luthar, 2009).

The primary environmental factors correlated with youth SWB are strong interpersonal relationships with parents and peers, and positive schooling experiences (Gilman & Huebner, 2003; Suldo, Huebner, Savage, & Thalji, 2011). Adolescents who reported better relations with parents and peers also reported greater life satisfaction one year later (Huebner, Funk, & Gilman, 2000). Adolescents with the highest levels of life satisfaction reported the lowest levels of social stress (Gilman & Huebner, 2006). Whereas life satisfaction tends to be tied closer to family relationships than social factors involving school and friends, school and friend contexts are more pertinent to positive affect, suggesting that positive experiences with school and friends may contribute to

students' daily moods but that overall life satisfaction is more dependent on family experiences (Morgan, Vera, Gonzalez, Conner, Vacek, & Coyle, 2011; Weinstein, Mermelstein, Hedeker, Hankin, & Flay, 2006). Parent support is particularly crucial to students' life satisfaction, though this influence decreases somewhat as adolescents age (Suldo & Huebner, 2004). Perceiving social support from their parents, engaging in daily and routine interactions with their family (such as having family dinners), and talking with their parents about their problems are associated with positive adolescent life satisfaction (Piko & Hamvai, 2010).

Peer relationships also relate to adolescents' well-being. Students with higher levels of SWB report fewer social problems, such as loneliness or difficulty getting along with others, and more classmate support than students with lower SWB (Suldo & Shaffer, 2008). Positive peer interactions such as perceiving supportive acts from peers are associated with higher life satisfaction and positive affect; conversely, peer victimization is detrimental to adolescents' life satisfaction and positive affect (Martin & Huebner, 2007). Martin and Huebner's (2007) hierarchical multiple regressions found that the receipt of prosocial acts predicted positive affect and life satisfaction above and beyond the contributions of overt victimization, prompting the conclusion that prosocial peer interactions can be a protective factor in the relationship between victimization and life satisfaction for adolescents.

In a review of the literature on perceived quality of life and schooling factors, Suldo, Riley, and Shaffer (2006) identified school satisfaction and teacher support as robust correlates of life satisfaction. Being happy with school, having positive attachment to school, and high academic achievement are associated with adolescents' well-being

(Piko & Hamvai, 2010; Suldo, Shaffer, & Riley, 2008). Greater perceptions of teacher support (feeling comfort and assistance from teachers), and positive relations with teachers and classmates also co-occur with elevated subjective well-being (Gilman & Huebner, 2006; Suldo, Friedrich, White, Farmer, Minch, & Michalowski, 2009). Furthermore, adolescents with high levels of cognitive engagement in schooling (i.e., beliefs that school will help them achieve their future goals) showed increased life satisfaction five months later (Lewis, Huebner, Malone, & Valois, 2011).

Across mental health outcomes, common environmental predictors include parenting practices, interpersonal relationships with parents and peers, school experiences, and stressful live events. The current study proposes to examine interpersonal relationships with parents and peers, pride in one's school, and stressful life events. Regarding parenting practices, perceived social support from parents will serve as an indicator of parental warmth.

In conclusion, demographic, intrapersonal, and environmental variables are all important contributors to adolescents' mental health. Regarding demographic variables, females are more vulnerable to internalizing problems while males are more susceptible to externalizing concerns. Students from low SES are more likely to experience psychopathology than peers with additional financial resources, and students entering high school are more at risk for developing psychopathology than younger students. Demographic variables account for less variability in adolescents' well-being, as long as students are not living in poverty. Intrapersonal variables pertinent to psychopathology include low self-esteem, negative attribution style, poor coping strategies, and aggressive beliefs. Positive self-concept, optimism and internal locus of control are notable

intrapersonal variables linked to adolescents' positive well-being. Environmental factors relevant to psychopathology include social stress and rejection by peers, while perceiving social support from parents, peers, and teachers is associated with adolescents' SWB. In order to predict adolescents' later mental health, these demographic, intrapersonal, and environmental factors should be considered, simultaneously if possible.

Stability of Adolescents' Mental Health

In this section, the stability of adolescents' psychopathology and well-being is examined. A review of the literature yielded only a handful of longitudinal studies of adolescents' psychopathology that have been published in the past decade. The studies reviewed here are those that focused on adolescents and followed participants for at least one year. Studies of adolescents' psychopathology are first summarized, followed by a summary of longitudinal studies of adolescents' well-being, and ending with a summary of longitudinal studies that examined both SWB and psychopathology.

Stability of adolescent psychopathology. Regarding the stability of internalizing disorders, one recent study followed high school juniors (n = 438) for three years and determined that symptoms of anxiety are more stable than symptoms of depression, and that depression is more episodic than anxiety (Prenoveau, Craske, Zinbarg, Mineka Rose, & Griffin, 2011). Specifically, participants' symptoms of depression, social phobia, and specific phobia were measured via a semi-structured clinical interview on three different occasions, each separated by one year. Longitudinal measurement model parameter estimates for the one-, two, and three-year correlations for .62, .46, .46 for depressive symptoms, .73, .70, and .59 for social anxiety symptoms, and .76, .74, and .64 for specific phobia symptoms. These associations indicated that depressive symptoms

showed moderate relative stability over time while anxiety symptoms showed high relative stability.

A separate study found that about half of students identified as having an internalizing disorder continued to have one 15 months later. A school-based sample of 523 adolescents between the ages of 12 and 19 (M = 15.2, SD = 1.7 years) completed a battery of self-report measures that included assessments of internalizing disorders and substance abuse at two different time points separated by 15 months (Eassu, Conradt, & Petermann, 2002). At Time 1, 62 students met criteria for an anxiety disorder; at Time 2, 14 (22.6%) of these students continued to meet criteria for an anxiety disorder, 11 (17.7%) had depression, 17 (27.4%) somatoform disorder, 4 (6.5%) substance use disorders, and 26 (41.9%) had no disorders at Time 2. In addition, 36 students who did not have an anxiety disorder at Time 1 did have one at Time 2. Logistic regressions indicated that older age, presence of somatoform, presence of substance use disorders, and a higher numbers of negative life events at Time 1 significantly predicted the stability of anxiety disorders at Time 1 and Time 2. None of the other measured variables (family structure, parental psychopathology, interpersonal relations, perceived control, self-perceived competence) were significantly related to the stability of anxiety.

Studies that have simultaneously examined the stability of adolescents' internalizing and externalizing behaviors found moderate stability for both types of psychopathology. Overbeek, Vollebergh, Meeus, Engels, and Ljijpers (2001) examined the stability of externalizing and internalizing problems in a 6-year 3-wave longitudinal study with a sample of 1302 Dutch adolescents and young adults. Participants represented four age groups: early adolescence (ages 12-14 years), mid-adolescence (15-

17), late adolescence (18-20), and young adulthood (21-24). The second and third waves occurred three and six years after baseline, respectively. Participants completed measures of internalizing problems (i.e., psychological stress and depressive mood, suicidal thoughts) and delinquency (i.e., number of delinquent acts, such as violent crimes, vandalism, and crime against property, committed over the past 12 months) at each wave of data collection. Stability coefficients for internalizing problems and delinquency indicated moderate stability across time (r = .31 to .41). Regarding gender differences, females tended to experience more internalizing difficulties between early to mid-adolescence though their levels of internalizing problems stabilized from late adolescence to young adulthood. Alternatively, males' internalizing problems peaked from mid-adolescence to late adolescence. Regarding delinquency, participants' delinquent acts increased from early to mid-adolescence and then declined from late adolescence to young adulthood, regardless of gender.

Reitz, Dekovic, and Meijer (2005) found that about half of students with internalizing problems will continue to have symptoms one year later, and found this trend to be true for externalizing symptoms as well. Reitz and colleagues administered the Youth Self-Report Form of the Child Behavior Checklist (YSR; Achenbach, 1991) to 650 adolescents between the ages of 13 and 14 years old (M = 13.36; SD = 0.55 years) at two time points separated by one year to explore the stability of internalizing and externalizing symptoms. Correlations between symptoms at Time 1 and Time 2 for girls were as follows: delinquent behavior (r = .45), aggressive behavior (r = .59), anxious/depressed (r = .54), withdrawn (r = .54), and somatic complaints (r = .60). Correlations between Time 1 and Time 2 for boys were as follows: delinquent behavior (r

= .50), aggressive behavior (r = .61), anxious/depressed (r = .57), withdrawn (r = .60), and somatic complaints (r = .49). These correlations suggest moderate to strong stability across the two times. To determine the clinically relevant changes in adolescents' functioning across time, adolescents' YSR scores were classified as clinical ($t > 63$), subclinical (t = 60-63), and normal ($t < 60$) based on t-values and instrument norms. Non-significant trends included that externalizing problems were more stable among girls, and internalizing problems were more stable among boys. Additionally, girls in the normal range of symptoms at Time 1 were more likely to show significantly more ($p < .05$) increases in problem behaviors (internalizing or externalizing) than boys. Regarding stability of externalizing symptoms, at Time 1, 9 (37%) of the 24 boys and 15 (58%) of the 26 girls with clinical levels of externalizing behaviors also scored in the clinical range at Time 2. Conversely, 15 (63%) of the boys and 11 of the girls (42%) in the clinical range of externalizing problems were no longer in the clinical range at Time 2. Of the 186 boys and 194 girls who scored in the normal range of externalizing behavior at Time 1, 169 (91%) and 164 (84%), respectively, continued to demonstrate normal levels at Time 2 while 17 (9%) and 30 (16%) scored higher either subclinical or clinical levels at Time 2. Regarding internalizing problems, 20 (59%) of the 34 boys and 20 (43%) of the 46 girls with clinical levels of internalizing symptoms at Time 1 continued to be in the clinical range at Time 2, while 14 (41%) of the boys and 26 (57%) of the girls were no longer in the clinical range. Alternatively, 160 (93%) of the 172 boys and 128 (82%) of the girls in the normal range of internalizing symptoms at Time 1 remained in the normal range at Time 2, while 12 (7%) of the boys and 29 (18%) of the girls moved into the subclinical or clinical range.

In a longer longitudinal study, Pettit, Morgan, and Paukert (2005) found that mood disorders, particularly bipolar disorder, demonstrated higher stability than externalizing disorders and schizophrenia. The sample consisted of 815 children and adolescents (*M* age = 12.5, *SD* = 2.9 years during the first hospitalization) who had been hospitalized in a psychiatric hospital at least two times during the study's 9-year period. During the first hospitalization, all participants received a primary Axis I diagnosis based on the DSM (third edition if they entered the hospital prior to 1994 and fourth edition if they entered in 1994 or later). The stability of the diagnoses across hospitalizations for the 9-year time frame was analyzed. Concordance rates calculated for each participant indicated greater stability for diagnoses of mood disorders, particularly bipolar disorder and major depressive disorder, compared to externalizing disorders. Oppositional defiant disorder showed the least stability across hospitalizations. Pettit and colleagues noted their study was limited by potential inconsistencies in diagnosis, due to (a) attending physicians and treatment teams rendered diagnoses rather than diagnosis by structured diagnostic interviews, and (b) use of two different classification systems (DSM-III and DSM-IV).

Taken together, these studies demonstrate that multiple forms of psychopathology are moderately stable across time. Generally, these studies found that approximately half of adolescents exhibiting a significant externalizing or internalizing problem continue to exhibit the problem one year later. Some evidence suggests that internalizing problems may be more lasting than externalizing problems, though findings are mixed. Additionally, gender and age may play a role in stability. Adolescent girls seem to be more vulnerable than boys to developing future internalizing and externalizing problems.

Additionally, males' internalizing problems appear to stabilize during late adolescence while females' stabilize in young adulthood. Externalizing problems tend to stabilize earlier and decline in late adolescence for both genders.

Stability of adolescent SWB. Compared to research on psychopathology, longitudinal studies of adolescents' well-being are limited. In his review of the literature on life satisfaction in youth, Huebner (2004) noted that longitudinal research with adolescents has demonstrated that life satisfaction reports exhibit moderate stability over time and yield more than temporary affective states. In a preliminary study to address this gap, Antarmian and Huebner (2009) administered the MSLSS to 84 youth at three different time points, each separated by one year (grades 8, 9, and 10), and calculated test-retest reliability coefficients to determine the stability of domain-specific and general life satisfaction reports. All correlations were modest to moderate in magnitude (r = .29 - .50). For specific domains of life satisfaction, correlation coefficients across one- and two- year intervals, respectively, were as follows: family satisfaction (r = .48, .44), friend satisfaction (r = .27, .42), living environment satisfaction (r = .50, .41), school satisfaction (r = .59, .48), self satisfaction (r = .29, .53), and total life satisfaction (r = .50, .59). The authors noted the fickle nature of friendships among adolescents, as well as the transition to high school, may contribute to the lower 1-year stability for friend satisfaction. Repeated measures ANOVAs indicated only the living environment domain showed significant differences in mean scores across administrations (F = 5.61, p < .05), with students' satisfaction with living environments significantly lower in grade 10 than grades 8 and 9, suggesting that adolescents become less satisfied with their living

environments as they age. Beyond that distinction, life satisfaction scores were relatively stable across time points.

Lewis and colleagues (2011) investigated life satisfaction in 779 middle school students (mean age of 12.64, *SD* = .66), on two occasions separated by five months. Relevant results of the larger study included that SLSS scores were moderately stable across the two time points (r = .63), although there were significant mean differences (p < .01) between Time 1 (*M* = 4.46, *SD* = 1.00) and Time 2 (*M* = 4.58, *SD* = 1.02) SLSS average scores, suggesting higher life satisfaction as the school year progressed.

These two studies demonstrate that youth SWB, namely life satisfaction, is moderately stable. There is some evidence that some domains of satisfaction (e.g., living environment satisfaction) may be less stable over time, while correlations between total life satisfaction scores across one year intervals are large in magnitude.

Stability of positive and negative affect. A few studies have examined the stability of PA and NA in youth. In one longitudinal study, 270 4th to 11th grade students (*M* age = 12.9, *SD* = 2.23 years), participants completed the PA and NA scales from the Positive and Negative Affect Schedule—Extended Version (PANAS-X; Watson & Clark, 1991) on two occasions separated by seven months (Lonigan, Phillips, & Hooe, 2003). Correlations between Time 1 and Time 2 PANAS-PA and Time 1 and Time 2 PANAS-NA were .64 and .53, respectively, suggesting moderate stability in these constructs across time.

Another longitudinal study used an experience sampling method in which 220 students in 5th to 8th grade were given pagers to carry for one week on two occasions separated by four years (Larson, Richards, Moneta, Holmbeck, & Duckett, 1996).

Students were randomly prompted by their pagers to rate their emotional states on a three 7-point semantic differential items (i.e., happy-unhappy, cheerful-irritable, friendly-angry) seven to eight times daily. With this measurement, positive and negative affect were treated as opposite ends of the same continuum. To address their specific research questions, the authors examined participants' emotional state ratings that occurred during interactions with their families only. Analyses revealed that students' affect while with their family was more negative in early adolescence and then more positive in late adolescence. Though all students showed decreased affect between 5th and 8th grades, girls' affect remained negative in 9th and 10th grade while boys' showed improvements. Between 10th and 11th grade, girls' affect became more positive and boys' became more negative, resulting in similar affect levels by 11th grade.

Cole and colleagues (1999) examined the stability of NA only. A sample of 436 7th grade students completed the Differential Emotion Scale for Children—Version IV (DES-IV; Blumberg & Izard, 1986), a measure of NA, every six months for two years. Findings suggested that NA was highly stable with six-month stability estimates ranging from .80 to .85.

Findings from these three studies indicate that PA and NA are quite stable across time, a rather surprising finding given that emotions are often considered fleeting and situationally-based. There is some evidence that young adolescents have more NA than PA, particularly girls, until late adolescence.

Stability of psychopathology and SWB in studies examining both simultaneously. Few studies study the stability of psychopathology and SWB at the same time, likely a consequence of the traditional conceptualization of mental health

where mental wellness is assumed in the absence of psychopathology. However, three published studies have examined across-time relationships between wellness and psychopathology in the same sample.

Huebner and colleagues (2000) administered 99 high school students (*M* age = 16.14, *SD* = 1.13 years) the SLSS and the BASC (Reynolds & Kamphaus, 1992) on two different occasions separated by one year. The test-retest coefficient across the one-year interval for the SLSS indicated students' life satisfaction reports were moderately stable (*r* = .53); unfortunately, the authors did not provide the test-retest coefficients for the BASC within their sample.

Suldo and Huebner (2004) administered 816 middle and high school students (*M* age of 14.2, *SD* = 1.8 years) the SLSS and the YSR to measure externalizing and internalizing behaviors on two occasions separated by one year. Test-retest correlations for Time 1 and Time 2 life satisfaction, internalizing behaviors, and externalizing behaviors were: .57, .63, and .65, respectively, suggesting that levels of these constructs were similarly stable over time.

Marques and colleagues (2011) examined a younger sample (*M* age = 11.78, *SD* = 1.22 years) of 202 children and early adolescents at three different times points, each separated by one year. Participants completed the Mental Health Inventory-5 (MHI-5), a shortened version of the Mental Health Inventory-38 and the "mental health" dimension of the Short Form-36 Health Survey questionnaire (Ware et al., 1993). The MHI-5 includes five questions about mood over the past month to assess experiences of well-being and the absence of distress. The SLSS measured adolescents' life satisfaction. Repeated measures ANOVAs indicated no significant mean differences on either

measure of students' mental health across the different time points. Time 1 SLSS scores were highly correlated with SLSS scores at Time 2 (r = .56) and Time 3 (r = .51); there was a similarly high relationship between Time 2 and Time 3 SLSS (r = .53). Correlations for the MHI-5 were: Time 1 and Time 2 (r = .49), Time 1 and Time 3 (r = .47), and Time 2 and Time 3 (r = .55).

In sum, these longitudinal studies of psychopathology and wellness indicate that while mental health is moderately stable, there is still room for change over time. Correlations between internalizing and externalizing symptoms demonstrate similar stability over time to that of SWB.

Stability of the dual-factor model. There is only one known study that has explored the stability and movement of adolescents' mental health status as yielded by the dual-factor model classification system. Specifically, Kelly and colleagues (2012) examined the longitudinal stability of mental health group membership of middle school students. A sample of 730 students completed measures of SWB, psychopathology, and social support in fall 2008 and spring 2009. SWB was measured via the composite score of SLSS and PANAS-C. Internalizing and externalizing forms of psychopathology were indicated by the Self-Reported Coping Scale (SRCS; Causey & Dubow, 1992). Two measures were used to assess different aspects of social support. The Seeking Social Support subscale of the SRCS assessed how often students relied on teachers, family, and friends' social support as a coping strategy. The Student Engagement Instrument (SEI; Appleton, Christenson, Kim, & Reschly, 2006), comprised of the following subscales: Family Support for Learning, Teacher-Student Relationships, and Peer Support for

Learning, measured what the authors termed to be students' environmental context of social support.

High psychopathology was defined as RCS *t*-scores of 60 or higher, low psychopathology as RCS *t*-scores of 59 or lower, high SWB as SWB composite *t*-scores of 41 or higher, and low SWB as SWB composite *t*-scores of 40 or lower. Each student's group membership at each time point was compared. At Time 1, 64% of students were classified as flourishing, 8% vulnerable, 20% symptomatic but content, and 8% troubled.

Of the youth originally identified as flourishing, at Time 2: 85% were still flourishing, 6% became vulnerable, 9% symptomatic but content, and 1% troubled. Of the youth originally identified as vulnerable, at Time 2: 29% were still vulnerable, 46% became flourishing, 14% symptomatic but content, and 12% troubled. Of the youth originally identified as symptomatic but content, at Time 2: 42% were still symptomatic but content, 43% became flourishing, 7% vulnerable, and 7% troubled. Of the youth originally identified as troubled, at Time 2: 47% were still troubled, 18% became flourishing, 23% vulnerable, and 12% symptomatic but content. These results showed that those in the flourishing group at Time 1 were the most likely to maintain their group status, and the vulnerable group showed the least amount of stability. Youth with vulnerable status at Time 1 were most likely to fall into the flourishing group at Time 2, indicating that their psychopathology remained low but their happiness increased over time. Interestingly, the majority of originally symptomatic but content youth either maintained that mental health status at Time 2 or improved into the flourishing group, signaling students in this group were more likely to maintain their average or high levels of happiness and experience a decrease in psychopathology than they were to become

less happy with the same levels of psychopathology (which would move them to troubled status at Time 2).

Multiple logistic regression analyses identified which social support variables predicted middle school students' change in group membership from Time 1 to Time 2. Flourishing students at Time 1 with higher levels of family support for learning were twice more likely to remain in this group at follow-up than initial flourishing students with lower levels of family support. None of the four social support variables significantly identified which students moved from the vulnerable group to the flourishing group. Surprisingly, students with initial vulnerable mental health status with positive teacher-student relationships were 10 times more likely than initially vulnerable students with negative teacher-student relationships to become symptomatic but content or troubled. In the symptomatic but content group, students with more positive teacher-student relationships were twice more likely to become vulnerable or flourishing. Also in this group, students who were less likely to seek social support were half as likely to become vulnerable or flourishing. No social support factors significantly predicted which students moved from symptomatic but content to troubled over time. Students with initial troubled mental health which high levels of family support for learning were three times more likely to remain troubled than students with lower levels. Overall, the findings for the impact of social support (whether higher levels predicted improvements in or deteriorations in mental health) were mixed

While this study is the first examination of the stability of the dual-factor model over time as well as the predictors of future group mental health, there were a few limitations. Psychopathology was measured completely by self-report, though the use of

teacher or parent report (e.g., someone other than the student) is the preferred method for assessing externalizing symptoms (Merrell, 2008a). Second, Kelly and colleagues did not base their cut-point for SWB on the proportion of their sample demonstrating high psychopathology, as has been utilized in previous studies of the dual-factor model (e.g., Suldo & Shaffer, 2008), nor did they provide a clear rationale for the cut-point they did use. Another limitation of this study involved the short time span (i.e., five months) between the two assessment points. Lastly, the sample included middle school students only, and it is unknown what the stability of the dual-factor model might be in older students (i.e., high school students). Given that the groups in the dual-factor model have been associated with different outcomes among high school students versus middle school students (e.g., middle school students with Complete Mental Health having the best academic functioning while subjective well-being was not strongly related to high school students' academic achievement; Suldo & Shaffer, 2008; Suldo, Thalji, Frey, McMahan, Chappel, & Fefer, 2011) and that high school presents a unique context (i.e., entails increased academic expectations, more responsibility and independence, and heightened importance of peers; Benner, 2011), research on the dual-factor model's stability should be extended to high school-age students.

In sum, the extant literature illustrates that SWB and psychopathology are moderately to strongly stable across time. Age and gender seem to play a role in the stability of both psychopathology and positive and negative affect. When considering SWB and psychopathology at the same time, preliminary research indicates that youth with complete mental health (those with average to high levels of SWB and low levels of psychopathology) display the most stability in their mental health across time.

Meanwhile, vulnerable youth exhibit the least amount of stability and are more likely to have complete mental health one semester later.

Conclusions and Future Directions

A dual-factor model of mental health, in which both positive (i.e., SWB) and negative (i.e., externalizing and internalizing symptoms) indicators of mental health are considered, has been shown to provide a useful way to conceptualize mental health among children in elementary school (Greenspoon & Saklofske, 2001), middle school (Antaramian, Huebner, Hills, & Valois, 2010; Suldo & Shaffer, 2008), and high school (Suldo et al., 2011), as well as extended to young adults in college (Eklund, Dowdy, Jones, & Furlong, 2011). Four distinct mental health groups, including two that are overlooked with traditional assessment methods (i.e., those with high psychopathology in the presence of high SWB, and those with low psychopathology in the absence of SWB), emerged in all of these studies, supporting the need for a more comprehensive definition of mental health in which SWB is viewed in addition to psychopathology. However, research to date has not explored the extent to which high school students' retain their mental health status over time, or the typical mobility between mental health categories. Determining the stability of group membership, the level of movement across groups that may occur, and what demographic, intrapersonal, and environmental factors relate to such movement would provide insight on how to predict and understand youth mental health. The current study addressed these gaps in the research with a longitudinal design in which high school students' mental health status (as yielded in the dual-factor model) was identified at two time points separated by one year. The predictors that relate to students' movement in this model across time were determined, as were factors that

predicted which students continuously had optimal mental health and, for comparison, students who were chronically troubled.

Chapter 3: Methods

This study investigated the stability of a dual-factor model of mental health in high school students and identified predictors of movement across groups as well as continuous complete mental health. This chapter explains the methods which were used to address these research goals. First, the study's research design and sample are presented. Next, data collection procedures and planned statistical analyses are delineated. Last, limitations are discussed.

Research Design

The current study utilized a longitudinal non-experimental design to determine the stability of the mental health groups yielded from a dual-factor model of mental health classification, as well as predictors of later mental health status (i.e., movement across groups, stability in the complete mental health and troubled groups). A non-experimental study aims to collect evidence to support relationships between naturally occurring variables. In this study, there was not any manipulation or control of the independent variables of interest (i.e., demographic, intrapersonal, and environmental factors) and no random assignment to groups. Instead, the current study aimed to examine the naturally occurring relationships between demographic, intrapersonal, and environmental factors and mental health group status (as yielded in the dual-factor model) across time. This dataset consisted of two waves of data; Time 1 is archival (data collected in December 2010) and Time 2 was collected one year later (in December 2011). Specifically, this study followed-up with the same participants included in Suldo and colleagues' (2011)

examination of a dual-factor model of mental health in high school students, in order to determine the stability of the students' mental health classification and identify predictors of mental health group status.

Procedures

Setting. Participants for the current study were recruited from two high schools located in a large school district in the Southeastern United States. The specific schools were chosen as part of a larger research project on the development of youth subjective well-being, and school administration expressed interest in understanding and promoting their students' mental health.

School A. In the 2009-2010 school year, one of the schools from which participants were recruited consisted of 2494 students. This school population is located in an urban community and its population is comprised of the following ethnic groups: 42.2% Caucasian, Non-Hispanic; 40.1% Hispanic; 8.8% African American; 3.8% Asian; 0.5% Indian; 4.3% multi-ethnic. In the student population, 49% are economically disadvantaged (i.e., receive free or reduced lunch). In the study, sampling from 9^{th}, 10^{th}, and 11^{th} grade levels occurred in order to yield representation of a developmentally diverse group of students who should be present in high school for the duration of the 2-year study.

School B. The second school from which participants were recruited consisted of 2224 students from a rural community in the 2009-2010 school year. The school population is comprised of the following ethnic groups: 56% Caucasian, Non-Hispanic; 27% Hispanic; 13% African American; 2% Asian, and 2% are identified as multi-ethnic. Of these students, 40% are economically disadvantaged (i.e., receive free or reduced

lunch), and 3% of students are identified as migrant students. As with School A, sampling from School B occurred at each grade level (i.e., 9th, 10th, and 11th).

Participants. The dataset analyzed in this study is part of a larger, two-wave research project investigating SWB and psychopathology in relation to educational outcomes, social functioning, identity development, behavioral engagement, and physical health in high school students. This study's sample involves the 425 adolescents successfully recruited from the two schools who participated in both of the study's two waves of data collection in December 2010 and December 2011. At the onset of the study, parent consent and student assent was obtained for participation in the duration of the 2-year project. Participation for Time 2 was sought from all participants who remained in attendance at the participating high schools. A total of 428 of the 500 students who participated in Time 1 (a return rate of 85.60%) remained in attendance and participated in the study's second wave of data collection in December 2011. Given that this study examined across-time relationships among variables, only students who participated in both waves were included in the dataset analyzed in the current study.

Of note, prior to Time 1 the following groups of students were purposefully not recruited for participation: students in 12th grade, students taught in self-contained classrooms via Exceptional Student Education, and students with limited English proficiency. The latter two exclusionary criteria were imposed because the self-report questionnaires require a reading level of at least third grade (in English) and may cause undue distress for students who cannot read at the desired level.

School A. Inclusion criteria for participation in the current study at School A included: enrollment at School A in grades 9 to 11, not having limited English

proficiency, and not being served in self-contained Exceptional Student Education classrooms. To recruit students at School A, members of the research team first explained the study to school personnel (see Appendix A) and then randomly selected half of School A's homeroom classrooms for students in grades 9-11. Teachers of the selected homerooms were provided with a script to read to students (see Appendix B) explaining the purpose of the current study, participation requirements, and incentives offered for participation (i.e., entry in a lottery for a $50 gift card to the local mall, receipt of a pre-paid movie pass). Homeroom teachers also distributed parent consent forms (see Appendix C) to all 9^{th} – 11^{th} grade students in their homeroom classes.

At School A, a total of 35 homeroom teachers participated in recruiting students (i.e., distributing consent forms), with class sizes ranging from 17 to 37 students. Response rate per teacher/classroom averaged 24.58% (approximately 7 students per class), ranging from 1 to 15 students (3.23% to 60% of participating classrooms) recruited per participating classroom. Of note, two teachers only recruited one student to participate. Of a total of 1066 students recruited, 256 students returned consent forms, for a total response rate of 24.02% for School A.

School B. Inclusion criteria for participation in the current study at School B included: enrollment in grades 9 – 11 at School B, not having limited English language proficiency, and not being served in self-contained Exceptional Student Education classrooms. Recruitment of students at School B began with members of the research team explaining the study (see Appendix A) to English teachers of students in grades 9 – 11. The information provided included the purpose of the study, teachers' role in the study, and associated incentives for their assistance and participation. English teachers

were then given a script to read to their students (see Appendix B) explaining the purpose of the current study, participation requirements, and incentives offered to students for participation (i.e., enrollment in a lottery for a $50 gift card to the local mall). During this time, English teachers distributed parent consent forms (see Appendix C) to all students in their class sections for students in grades 9-11.

At School B, eight classroom teachers distributed consent forms to all of the students in different sections of their class (2 to 7 sections per teacher). Total students per teacher ranged from 50 (2 sections) to 162 (7 sections), with an average of 118 students per teacher. In total, participation was sought from 941 students. Return rates per teacher ranged from 11% to 62%; the average return rate by teacher was 31.50%. A total of 270 students returned consent forms, for a response rate of 28.69% for School B.

In sum, a total of 2007 students were recruited from Schools A and B, and 526 returned consent forms, for a total response rate of 26.21%. Parents of 522 of the students who returned signed parent consent forms indicated permission for the child to participate in the study, while four students' parents wrote that their child was not permitted to participate. Three of the 522 students with parent consent refused to assent. A total of 507 of the remaining 519 students were present at school on the day(s) the self-report surveys were administered (school records indicated 11 of the 12 absent students had withdrawn from the school in the few weeks between the collection of parent consent forms and administration of survey data). Three participants had incomplete self-report data; they were withdrawn from the study during the self-report data collection procedures due to language barriers (n = 2) or the inability to focus on the survey completion task (n = 1). Complete self- and teacher-report data was obtained from 504 youth participants (and 86

of their teachers) at Time 1. This number corresponds to a final Time 1 participation rate of 25.11% (i.e., 504 / 2007). However, four students were excluded from the final Time 1 sample; three of the students were omitted due to invalid responding (as determined by students' scores on the BASC-SRP *V* [validity) index) and the fourth due to invalid teacher responding on the BASC-TRS. The final Time 1 sample is 59% female; 49% of the sample reported qualifying for or receiving school lunch for free or a reduced-price. The ethnic break-down of the Time 1 sample is as follows: 44% White Non-Hispanic, 34% Hispanic, 10% multi-ethnic, 8% African-American, 3% Asian, and 1% other ethnic group.

The 500 students comprising the final Time 1 sample were sought out for participation for data collection at Time 2 (one year later). A total of 428 students out of the 500 Time 1 participants were present at school on the day(s) the self-report surveys were administered for Time 2. School records indicated that 53 students from Time 1 (24 from School A and 29 from School B) had withdrawn from their school between Time 1 and Time 2 data collection. Specifically, 212 out of the 244 students whom participated in Time 1 from School A returned for Time 2 and 216 out of the 256 whom participated in Time 1 for School B returned for Time 2. Complete self- and teacher-report data was obtained from 428 youth participants (and 67 of their teachers) at Time 2. This number corresponds to a final Time 2 student participation return rate of 85.60% (i.e., 428 / 500). The number of students each of the 67 teachers reported on ranged from one to fourteen (M = 6.33). However, three students were excluded from the final Time 2 sample due to invalid responding (as determined by students' scores on the BASC-SRP *V* [validity) index). The final Time 2 sample is 60% female; 49.17% of the sample reported

qualifying for or receiving school lunch for free or a reduced-price. The ethnic break-down of the sample is as follows: 44% White Non-Hispanic, 35% Hispanic, 9% multi-ethnic, 7% African-American, 3% Asian, and 1% other ethnic group. Attrition analyses were conducted to determine if there were significant demographic differences between the 428 participants who participated in both Time 1 and 2 and the 72 participants who participated in Time 1 only to determine if certain demographic groups were particularly affected by attrition from the study. Chi-square tests for independence indicated no significant differences between the two groups in terms of ethnicity, χ^2 (6, N = 500) = 10.02, p = .12, parent marital status, χ^2 (1, N = 500) = 0.19, p = .67, socioeconomic status (SES)/school lunch status, χ^2 (1, N = 500) = 0.03, p = .85, gender, χ^2 (1, N = 500) = 1.44, p = .23), grade, χ^2 (2, N = 500) = 2.07, p = .36, school, χ^2 (1, N = 500) = 0.64, p = .42, or Time 1 mental health group χ^2 (3, N = 500) = 3.22, p = .36.

Data collection procedures. Data collection for this study occurred on two separate occasions separated by one year. Data collection for Time 1 occurred in December 2010. In September of 2010, approval to conduct the larger study was obtained from the University of South Florida Institutional Review Board as well as the school district in which the schools are located. In November of the 2010-2011 academic school year, students in the targeted classrooms were read a verbal description of the study and given blank copies of the informed consent form. Signed parent consent forms were collected by identified school personnel. Approximately three months after the start of the school year (during the second nine-week grading period), students with parent consent to participate were called to a large space (i.e., an auditorium or cafeteria), in groups of 50-70 students to complete a packet of questionnaires. Before students

responded to items within the packet, a member of the research team read the student assent form (see Appendix D) aloud to all students in session. After students provided assent, they completed the following: demographic questionnaire (see Appendix F); practice questions that were similar in format to other items within the packet (see Appendix F); and all surveys in counterbalanced order. The questionnaires were counterbalanced in order to control for possible order effects. The research team responded to student questions with standard responses and monitored students to ensure that they were responding independently. When a student completed a survey packet, one member from the research team visually inspected each scale in the packet to ensure that all items were completed and to check for errors in responding. In the event an error was discovered, the student was asked to complete or correct the item(s). After the packet had been completed, checked for errors, and returned to a member of the research team, the student was compensated with a pre-paid movie ticket (worth a monetary amount of approximately $7.00). Following collection of students' self-report data, a teacher who was familiar with the student (i.e., had known the student for at least two months, for example the teacher of their English course) was asked to provide additional information about participants' externalizing symptoms of psychopathology, by completing a behavior rating scale (specifically, the BASC-2 TRS-A). Teachers first consented (see Appendix E) to participate in the study. For each BASC-2 TRS-A completed, the teacher was compensated with a $5 gift card to a local store.

The author of this dissertation's role in Time 1 data collection consisted of assisting in the development of the survey and selection of the final measures, collecting returned parent consent forms, administering student self-report surveys, data entry and

accuracy checking, and disseminating preliminary findings from Time 1 at a national conference (Suldo, Thalji, Frey, McMahan, Chappel, & Fefer, 2011).

The data collection procedures described above were repeated for Time 2 of data collection, in order to follow-up with the same participants one year later. Specifically, students who participated in Time 1 were re-administered the same surveys approximately three months after the start of the 2011-2012 school year (during the winter). Students were again called to a large space, such as a media center or cafeteria, in groups of 50-70 students to complete the packet of questionnaires. After being given a survey packet that contains the student's specific code number (in order to permit linking of data from Time 1 to Time 2), students completed the following: demographic questionnaire (see Appendix F); practice questions that are similar in format to other items within the packet (see Appendix F); all surveys in counterbalanced order. The research team responded to student questions with standard responses and monitored students to ensure that they were responding independently. When a student completed a packet, one member from the research team visually inspected each scale in the packet to ensure that all items were completed and to check for errors in responding. In the event an error was discovered, the student was asked to complete or correct the item(s). After the packet had been completed, checked for errors, and returned to a member of the research team, the student was compensated with a pre-paid movie ticket (worth a monetary amount of approximately $7.00).

Following collection of students' self-report data, a teacher who was familiar with the student (i.e., has known the student for at least two months, is currently the student's classroom teacher) was asked to provide additional information about participants'

externalizing symptoms of psychopathology, by completing a behavior rating scale (i.e., BASC-2 TRS-A). Teachers new to the study first provided written consent (see Appendix E) to participate. For each BASC-2 TRS-A completed, the teacher was compensated with a $5 gift card to a local store.

Measures. The current study examined numerous indicators of student mental health functioning, as well as demographic, intrapersonal, and environmental factors. A summary of these variables is presented in Table 1.

Table 1

Summary of Study Variables

Variable	Operational Definition	Measure/Indicator
Demographic Predictors		
Age	Self-reported years old	Demographic Form
Gender	Self-reported male or female	Demographic Form
Socioeconomic status	Composite score of self-report of free or reduced price lunch, father's level of education, and mother's level of education	Demographic Form
Ethnicity	Self-reported racial/ethnic group membership	Demographic Form
Intrapersonal Predictors		
Global self-esteem	Feelings of self-satisfaction, self-respect, and self-acceptance	BASC-2 SRP-A Self-Esteem Scale
Academic self-concept	Evaluations of academic abilities	SAAS-R Academic Self-Perceptions Subscale
Agreeableness	Feelings of compassion and cooperation towards others	APSI Agreeableness Subscale
Conscientiousness	Tendencies to be self-disciplined, organized, and dependable	APSI Conscientiousness Subscale
Neuroticism	Feelings of unpleasant emotions and the degree of emotional stability	APSI Neuroticism Subscale
Extraversion	Tendencies to be social and energetic	APSI Extraversions Subscale
Openness	Appreciation for novel and varied experiences	APSI Openness Subscale
Environmental Predictors		
Parent relationships	Perceptions of being important in the family, degree of parental trust and concern, and the status of the child-parent relationship	BASC-2 SRP-A Relations with Parents Scale
Teacher relationships	Perceptions of teacher support and care; liking teachers	BASC-2 SRP-A Attitude to Teachers Scale
Peer relationships	Perceptions of social support from classmates	CASSS Classmate Subscale
Schooling experiences: Connectedness	Feelings of pride in, and belonging to, one's school	SAAS-R Attitudes toward School Subscale
Schooling experiences: Achievement	Academic performance in high school courses	Grade point average from school records
Stressful life events	Accumulation of major life events experienced in past year	LEC Composite
Indicators of Mental Health		
Internalizing psychopathology	Symptoms of anxiety, depression, social stress, atypicality, somatization, as well as a sense of inadequacy and external locus of control	BASC-2 SRP-A Internalizing Composite
Externalizing psychopathology	Symptoms of aggression, conduct problems, and hyperactivity	BASC-2 TRS Externalizing Composite
Life satisfaction	Perceptions that one's life is going well	SLSS Composite
Positive affect	How frequently one experiences positive emotions	PANAS-C Positive Affect Scale
Negative affect	How frequently one experiences negative emotions	PANAS-C Negative Affect Scale

Demographic form. This questionnaire contains items assessing student grade level, age, gender, socioeconomic status (SES), and race/ethnicity, as well as other personal characteristics such as family structure (see Appendix F). The SES variable analyzed in the current study was comprised of three variables: students' self-reported lunch status (i.e., eligibility for free or reduced-price lunch), mother's level of education, and father's level of education. Z-scores were created for each of the three indicators, which were then averaged for each student. This form also features sample questions in Likert scale form (e.g., "I go to the beach"), which are similar in format to subsequent scales included in the survey packet. These practice items were used to teach students how to complete Likert-type questions before they began completing the surveys below.

School records. Semester grade point averages (GPA) were created from information obtained from school records at Time 1. GPA reflects students' average final grade earned in their seven classes in the semester in which baseline data were collected.

Students' Life Satisfaction Scale (SLSS; Huebner, 1991). The SLSS (see Appendix G) is designed to assess satisfaction with life as a whole in youth in grades 3 to 12. The SLSS consists of seven items in which students are asked to indicate the extent to which they endorse general statements about their life (e.g., "My life is going well," "I wish I had a different kind of life") on a Likert scale, ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Composite scores are calculated by reverse-scoring two items that are negatively worded, summing the responses, and then dividing the sum by the number of items (i.e., seven) to yield an overall score of global life satisfaction. Regarding interpretation, higher mean scores represent higher levels of global life satisfaction.

The SLSS has demonstrated high internal consistency (coefficient alpha = .82) and high test-retest reliability (r = .74 and r = .68) in a sample of 202 youth at 1- and 2-week intervals (Huebner, 1991). Convergent validity has been established with other measures of SWB, including the Perceived Life Satisfaction Scale (Adelman, Taylor, & Nelson, 1989) in a sample of high school students (r = .58; Dew & Huebner, 1994). Convergent validity of the SLSS has also been found by comparing high school students' SLSS scores and parents' global ratings of their children's happiness (r = .48; Dew & Huebner, 1997). The SLSS has also exhibited divergent validity, as demonstrated by its negative correlations with measures of depression and loneliness (Huebner & Alderman, 1993). Finally, the SLSS has yielded a small, non-significant correlation with a measure of social desirability (r = .05; Huebner, 1991).

Positive and Negative Affect Scale for Children (PANAS-C; Laurent, Catanzaro, Joiner, Rudolph, Potter et al., 1999). The PANAS-C (see Appendix H) is comprised of 27 items designed to assess the frequency of positive and negative emotions in youth. Twelve of the items measure the frequency of positive affect, and 15 items measure the frequency of negative affect. Using a Likert scale ranging from 1 (*very slightly* or *not at all*) to 5 (*extremely*), participants rate 27 words that describe moods or feelings (e.g., "excited," "proud," "gloomy") to indicate the extent to which they have experienced each in the past few weeks.

The PANAS-C was adapted for children and adolescents from the Positive and Negative Affect Scale (Watson, Clark, & Tellegen, 1988), a measure designed to assess positive and negative affect in adults. The PANAS-C has been successfully used with both school-based and clinical youth (Laurent et al., 1999). High internal consistency has

been documented by Laurent et al. (alpha coefficient of .92 for the NA scale and .89 for the PA scale) as well as by other researchers (alpha coefficient of .90 for the NA scale and .88 for the PA scale; Ebesutani, Okamura, Higa-McMillian, & Chorpita, 2011). Convergent and divergent validity of the PANAS-C is evidenced by high, positive correlations between the NA scale and measures of anxiety and depression and moderate negative correlations between the PA scale and measures of anxiety and depression (Laurent et al., 1999).

Self Report of Personality Form of the Behavior Assessment System for Children- Adolescent Version, 2nd Edition (BASC-2 SRP-A; Reynolds & Kamphaus, 2004). This rating scale (which is not included in appendices due to copyright restrictions) is designed to measure different areas of psychopathology and adaptive functioning in youth ages 12 to 21 years. This measure includes 176 items, 69 of which are written in *true* and *false* form, and 107 which are on a four point scale range from 1 (*never*) to 4 (*almost always*). Though twelve clinical and four adaptive scales are yielded by this measure, only the Attitude to Teachers clinical scale, Relations with Parents adaptive scale, Self-Esteem adaptive scale, and the clinical scales that comprise the Internalizing Composite (i.e., atypicality, locus of control, social stress, anxiety, depression, sense of inadequacy, and somatization) were analyzed in this study.

The BASC-2 SRP-A has been found to be a reliable and valid measure to assess youth psychopathology and adaptive functioning across different populations. Specifically, the BASC-2 SRP-A has demonstrated excellent internal consistency on the Internalizing Problems composite (α =.96 for ages 12-14 and α =.95 for ages 15-18), as well as on the additional scales of interest: Attitudes to Teachers (α =.84 for ages 12-14

and α =.79 for ages 15-18), Relations with Parents (α =.87 for ages 12-14 and α =.88 for ages 15-18), and Self-Esteem (α =.83 for ages 12-14 and α =.82 for ages 15-18). The Internalizing Problems composite has demonstrated good test-retest reliability across approximately a 20-day period (*r* = .82), as have the Attitudes to Teachers (*r* = .73), Relations with Parents (*r* = .80), and Self-Esteem (*r* = .78) scales.

Regarding construct validity, studies have indicated that the Internalizing Composite of the BASC-2 SRP-A has moderate to strong relationships with other measures of psychopathology, including the total score of the Child Depression Inventory (*r* = .69; [CDI] Kovacs, 2001) and the Internalizing Syndrome Scale of the Achenbach System of Empirically Based Assessment Youth Self-Report (*r* = .80; [ASEBA] Achenbach & Rescorla, 2001). The Relations with Parents scale relates to lower scores on the Family Problems scale of the Conners-Wells' Adolescent Self-Report Scale (*r* = -.58; [CASS] Conners, 1997). The Self-Esteem scale is associated with lower scores on the Negative Self-Esteem scale of the CDI (*r* = -.41).

No published studies comparing the Attitude to Teachers scale to measures of similar constructs were identified to support the convergent validity of the scale. However, the specific items in the scale were examined to assess its face validity. According to the test manual, the Attitudes to Teachers scale "assesses the individual's perception of teachers as being uncaring, unfair, or unmotivated to help their students" (p. 75). The items in this measure tap into these different dimensions as shown by the following examples: *My teacher cares about me*, *Teachers are unfair*, and *My teacher gets mad at me for no good reason*. Responses to these items would indicate whether a student holds teachers in high or low regard. Scores on the Attitudes to Teachers scale

also positively correlate with related outcomes, such as scores on the externalizing problems scale (r = .61) and the oppositional defiant problems scale (r = .62) on the Youth Self-Report ASEBA. Since the Attitude to Teacher scale in scored in such a way that high scores typically indicate poor teacher-student relations, participants' raw composite scores will be reflected so that high scores indicate positive teachers-student relations (similar to how the study proposes to examine positive parent-child relations and supportive peer relations).

Teacher Rating Scale Form of the of the Behavior Assessment System for Children- Adolescent, 2nd Edition (BASC-2 TRS-A; Reynolds & Kamphaus, 2004). The BASC-2 TRS-A (which is not included in appendices due to copyright restrictions) measures psychopathology and adaptive functioning in youth ages 12 to 21. The BASC-2 TRS-A is comprised of 139 items to be completed by a teacher who has known the student for at least two months. The 139 items are scored on a 4-point scale, ranging from 1 (*never*) to 4 (*almost always*). The BASC-2 TRS-A yields ten clinical scales and five adaptive scales. For the purposes of the current study, only the subscales which form the Externalizing Composite (i.e., aggression, conduct problems, hyperactivity) were analyzed.

The BASC-2 manual reports that the TRS-A Externalizing Problems composite has excellent internal consistency (α = .97 for ages 12-14 and α = .96 for ages 15-18) as well as high test-retest reliability (r = .89) over a period of approximately 35 days. Regarding support for construct validity, the Externalizing Problems composite of the BASC-2 TRS-A has yielded moderate to strong correlations with similar teacher-report

measures of externalizing psychopathology, including the Externalizing Syndrome Scale of the ASEBA (r = .76).

Adolescent Personal Style Inventory (APSI; Lounsbury, Tatum, Gibson, Park, Sundstrom, Hamrick, et al., 2003). The APSI (see Appendix I) is comprised of 48 items intended to measure five dimensions of personality in adolescents: neuroticism (e.g., "My mood goes up and down more than most people"), extraversion (e.g., "I like meeting new people"), openness (e.g., "I like to learn about new ways of doing things"), agreeableness (e.g., "I am very easy to get along with"), and conscientiousness (e.g., "I like to plan things before I do them"). Students indicate on a Likert-type scale ranging from 1 (*Strongly disagree*) to 5 (*Strongly agree*) to indicate how well each statement describes them. After reverse-coding negatively worded items, all five scales were analyzed in the current study.

Lounsbury et al. (2003) found all APSI scales showed satisfactory internal consistency (α = .85 for neuroticism, α = .85 for extraversion, α = .75 for openness, α = .72 for agreeableness, and α = .76 for conscientiousness). A confirmatory factor analysis supported the five-factor structure of the APSI; specific fit indices included: RMSEA = .059, GFI = .91, and AGFI = .905 (Lounsbury et al., 2003). Convergent validity was established by statistically significant correlations between the APSI scales with the five scales on the NEO Five Factor Inventory (Costa & McCrae, 1992): agreeableness, r = .68, consciousness, r = .69, neuroticism, r = .83, extraversion, r = .77, and openness, r = .60 (Lounsbury et al., 2003).

Child and Adolescent Social Support Scale (CASSS; Malecki & Demaray, 2002). The CASSS is composed of 60 items designed to assess students' perceptions of

social support from parent(s), teacher(s), classmates(s), a close friend, and school administrators. Students use a Likert scale ranging from 1 (*never*) to 6 (*always*) to indicate how often they perceive receiving four types of support (emotional, instrumental, appraisal, and informational) by each source (e.g., "My parent(s) listen to me when I talk," "My teacher(s) makes it okay to ask questions," "My classmates pay attention to me."). For this study, only the classmate subscale (see Appendix J) were analyzed. There are two versions of the CASSS, Level 1 for use with elementary students, and Level 2 for use with middle and high school students. Level 2 was used for this current study.

The authors of the CASSS provided evidence to support the validity and reliability of the measure (Malecki & Demaray, 2002). For instance, the CASSS classmate has strong internal consistency (.94). Test-retest correlations of CASSS subscales for 85 middle school students that took the CASSS on two occasions separated by 8 weeks ranged from .60-.76. The internal structure of the CASSS is evidenced by moderate to high intercorrelations among the subscales (r = .32 to .54). A strong positive correlation (.66) between the CASSS classmate scale and the classmate scale on another social support measure (the Social Support Scale for Children; Harter, 1985) support convergent validity. Convergent validity of the CASSS is also supported by a positive correlation (.18) between the CASSS classmate subscale and teacher ratings of students' social skills (The Social Skills Rating System [SRSS], Gresham & Elliott, 1990), a related construct (Malecki & Demaray, 2002).

***School Attitude Assessment Survey – Revised (SAAS-R; McCoach & Siegle, 2003*).** The SAAS-R is designed to measure students' beliefs related to school. The complete SAAS-R consists of 35 items that assess five subscales: academic self-

perceptions, attitudes towards teachers, motivation and self-regulation, valuing of school, and attitude toward school. Students indicate agreement with each of item using a Likert scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Only the academic self-perceptions subscale, which assesses students' evaluations of their academic abilities, and the attitudes toward school subscale, which assesses students' feelings of pride and belonging in their school, were analyzed in this study (see Appendix L). The academic self-perceptions and attitudes toward school subscales are composed of seven and five items, respectively. The SASS-R is appropriate for use with high school students.

Both the academic self-perceptions and attitudes toward school subscales of the SAAS-R demonstrate adequate internal reliability (.86 and .87, respectively; McCoach & Siegle, 2003). The criterion-related validity of these subscales has been supported by their ability to distinguish low, average, and high achieving students from one another (Suldo, Shaffer, & Shaunessy, 2008). Suldo and colleagues found evidence for the convergent validity of these subscales via high correlations between the academic self-perceptions subscale and a different measure of the same construct, specifically the academic self-efficacy subscale of the Self-Efficacy Questionnaire for Children (r = .64; Muris, 2001), and between the attitudes toward school subscale and the school satisfaction subscale of the Multidimensional Students' Life Satisfaction Scale (r = .54; Huebner, 1994).

Life Events Checklist (LEC; Johnson & McCutcheon, 1980). The LEC measures a participant's exposure to stressful, major life events (see Appendix L). The complete questionnaire is comprised of 46 items or events to which students indicate the presence or absence of during the past year. Only the 18 items that are considered

uncontrollable (e.g., changing schools, parental divorce vs. more controllable events such as joining a club) were administered to participants. This measure has been used successfully in prior research with high school students (Suldo & Huebner, 2004).

Research questions. The research questions answered in this study are the following:

1. To what extent is mental health, as defined by categories yielded in the dual-factor model, stable in high school students across a 1-year period?
2. Which initial (Time 1) demographic, intrapersonal, and environmental factors predict which students consistently have Complete Mental Health?
3. Which initial (Time 1) demographic, intrapersonal, and environmental factors predict which students are consistently Troubled?
4. Which initial (Time 1) demographic, intrapersonal, and environmental factors predict which students who begin (at Time 1) with a partial mental health profile (i.e., Symptomatic but Content, Vulnerable) become (at Time 2)
    a. Complete Mental Health?
    b. Troubled?

Overview of Data Analyses

Prior to performing data analysis, Time 2 data were manually entered into a spreadsheet, converted to a SAS datafile, and then screened for outliers and missing data. This section provides an overview of descriptive statistics and inferential statistics that were used to answer the aforementioned research questions.

Descriptive statistics. The longitudinal sample was described in regard to grade level, gender, ethnicity, socioeconomic status (SES), and parent marital status. The larger sample (i.e., 500 participants at Time 1) was compared to the longitudinal sample (i.e., the participants who provide complete data at Time 2) to determine if certain demographic groups were particularly affected by attrition from the study.

The demographic features of the mental health groups yielded at Time 1 were provided. Chi-squared tests of proportions were used to indicate if a certain demographic variable is overrepresented in a certain mental health group. Chi-square tests were also utilized to determine if any significant differences across demographic variables emerged between students who participated in both waves of data collection as compared to those who participated in only Time 1 (e.g., students who were no longer enrolled in the participating schools at Time 2).

Correlational analyses. Pearson product-moment correlation coefficients were calculated between all continuous variables in order to determine the relationships between Time 1 predictors (e.g., self-esteem, stressful life events, parent-child relations) and outcome variables (i.e., Time 1 and Time 2 levels of life satisfaction, positive affect, negative affect, SWB composite, externalizing psychopathology, internalizing psychopathology).

Stability of mental health as yielded in a dual-factor model (research question 1). To explore the 1-year stability of adolescent mental health status, students were classified into mental health groups for each of the two time points. National norms provided for the commercially-available measure of psychopathology (i.e., BASC) and sample-specific norms for the indicators of well-being were employed to classify students

mental health groups based on their scores on measures of psychopathology and well being. As performed in previous research (Suldo & Shaffer, 2008), an aggregate SWB variable was calculated by standardizing and summing scores for life satisfaction and positive affect, and then subtracting negative affect scores.

To determine the existence and sample size of the four proposed groups within a dual-factor model of mental health at each time point, students' scores on the aggregate SWB variable and the BASC-2 have been examined (Time 1) and were calculated (Time 2). At Time 1, the 500 participants were classified into groups based on their mental health problems. High psychopathology was defined according to published gender-specific norms for the BASC-2 (Reynolds & Kamphaus, 2004). Scores within the "at-risk" or "clinically significant" range (at or above a *T*-score of 60) on either the self-reported internalizing symptoms or the teacher-rated externalizing symptoms were grouped as high psychopathology. The remaining students who scored in the normal range of symptoms (i.e., *T*-scores below 60) were classified as low psychopathology.

Since norms for SWB have not been developed, decision points for high and low SWB correspond with the proportion of students classified as having high or low psychopathology, as done in previous research (Suldo & Shaffer, 2008). By using this cut-point selection, every participant classified as high psychopathology can also potentially be classified as low SWB, consistent with a traditional model of mental health in which SWB and psychopathology are presumed to be opposite ends of a single continuum of mental health. Taking the traditional model of mental health into account ensures that the emergence of the symptomatic but content and vulnerable subgroups cannot be attributed to different cut-points. At Time 1, all students above the 26.4

percentile on SWB (percentile chosen because 26.4% of the sample was identified as high psychopathology) were classified as average to high SWB, and the remaining students below the same percentile were classified as low SWB. When Suldo and Shaffer (2008) employed this method, the raw scores of students classified as low SWB was consistent with those identified in prior research as indicative of low SWB (Suldo & Huebner, 2004). The Time 1 mental health group variable is similarly based on participants' dichotomized scores on SWB and psychopathology. The distribution of the 500 Time 1 participants in the four mental health groups is summarized in Figure 2.

Procedures for defining high psychopathology at Time 2 were the same (i.e., T-score of 60 or higher on either internalizing or externalizing mental health problems). The cut-point for low vs. average/high SWB was based on the percent of the remaining sample (N = 425) with high psychopathology at Time 2. Since 23.5% of the sample (100 of 425 participants) was identified as high psychopathology, the Time 2 SWB composite score (created by subtracting participants' standardized Time 2 negative affect scores from the sum of their standardized Time 2 life satisfaction and Time 2 positive affect scores) that corresponded to that same percentile served as the cut-point such that the 23.5% of participants with Time 2 SWB composite scores below that value were labeled "low SWB" at Time 2 and the 76.5% of participants with Time 2 SWB composite score above that value were labeled "average to high SWB" at Time 2.

After students were assigned to one of the four mental health groups at Time 2, descriptive analyses were reported to summarize the proportion of students who remained in the same group over time and the sample proportions that changed groups. Figure 2 depicts the different combinations of movement across groups that are possible and

includes the number of students who fell into each of the four mental health groups at Time 1 (Suldo, Thalji, Frey, McMahan, Chappel, & Fefer, 2011). The number of students in each subgroup was calculated to determine trends and patterns of change overtime across the dual-factor model.

		Time 1 Mental Health			
Time 2 Mental Health		**Complete Mental Health (*N* = 311)**	**Vulnerable (*N* = 57)**	**Symptomatic but Content (*N* = 57)**	**Troubled (*N* = 75)**
	Complete Mental Health	Stable *Subgroup 1*	SWB Increases *Subgroup 5*	PTH Decreases *Subgroup 9*	SWB Increases, PTH Decreases *Subgroup 13*
	Vulnerable	SWB Decreases *Subgroup 2*	Stable *Subgroup 6*	SWB Decreases, PTH Decreases *Subgroup 10*	PTH Decreases *Subgroup 14*
	Symptomatic but Content	PTH Increases *Subgroup 3*	SWB Increases, PTH Increases *Subgroup 7*	Stable *Subgroup 11*	SWB Increases *Subgroup 15*
	Troubled	SWB Decreases, PTH Increases *Subgroup 4*	PTH Increases *Subgroup 8*	SWB Decreases *Subgroup 12*	Stable *Subgroup 16*

Figure 2. Possible Movement Patterns in Mental Health Groups Yielded in the Dual-Factor Model across Two Time Points
Note. SWB=Subjective Well-Being; PTH=Psychopathology

Predictors of Time 2 mental health group membership. Logistic regression procedures were utilized to answer the second, third, and fourth questions about Time 1 predictors of mental health status at Time 2. Logistic regression enables researchers to predict a discrete outcome (in this study, group membership) from a set of variables (Tabachnick & Fiddell, 2006).

Continuous Complete Mental Health (research question 2). To determine what Time 1 factors predict which students remain in the Complete Mental Health group (subgroup 1), logistic regression analysis were performed. Only students who were in the Complete Mental Health group at Time 1 (N = 311) were included in this analysis. The outcome of this logistic regression was whether or not students remained in the Complete Mental Health Group (i.e., subgroup 1 vs. subgroups 2, 3, and 4). The model's independent variables was the previously specified demographic, intrapersonal, and environmental predictors. If the full model containing all predictors was statistically significant, indicating that the model was able to differentiate between participants who remained in the Complete Mental Health group from those who do not, the classification accuracy, and the statistical significance and unique contribution of each independent variable was evaluated.

Continuous Troubled status (research question 3). To determine what Time 1 factors predict which students remain in the Troubled group (subgroup 6), logistic regression analysis was performed. Only students who were in the Troubled group at Time 1 (N = 75) were included in this analysis. The outcome of this logistic regression was whether or not students remained in the Troubled group (i.e., subgroup 16 vs. subgroups 13, 14, and 15). The model's independent variables were the previously specified demographic, intrapersonal, and environmental predictors. If the full model containing all predictors was statistically significant, indicating that the model was able to differentiate between participants who remained in the Troubled group from those who do not, the classification accuracy, and the statistical significance and unique contribution of each independent variable was evaluated.

Movement from partial groups (research question 4). To determine what Time 1 factors predict which students who begin in a partial mental health group (i.e., Symptomatic but Content or Vulnerable) move to Complete Mental Health (subgroups 5 and 9) or move to Troubled (subgroups 8 and 12), logistic regression analysis was performed. Only students who were in either the Symptomatic but Content (N = 57) or the Vulnerable (N = 57) groups at Time 1 were included in the analysis.

The outcome of the first logistic regression was whether or not students moved to either the Complete Mental Health (i.e., subgroups 5 and 9) or moved elsewhere (i.e., subgroups 6, 7, 8 10, 11, or 12). The model's independent variables were the previously specified demographic, intrapersonal, and environmental predictors. If the full model containing all predictors was statistically significant, indicating that the model was able to differentiate between participants who improved to Complete Mental Health or did not, the classification accuracy, and the statistical significance and unique contribution of each independent variable was be evaluated.

The outcome of the second logistic regression was whether or not students moved to either the Troubled group (i.e., subgroups 8 and 11) or moved elsewhere (i.e., subgroups 6, 7, 8 10, 11, or 12). The model's independent variables were the previously specified demographic, intrapersonal, and environmental predictors. If the full model containing all predictors was statistically significant, indicating that the model was able to differentiate between participants who improved to Troubled or did not, the classification accuracy, and the statistical significance and unique contribution of each independent variable was be evaluated.

Ethical Considerations

Several precautions were taken to ensure participants' safety and well-being. First, permission to collect the data for the larger 2-year study was secured from the participating high schools, their school district's Department of Assessment and Accountability, and the USF Institutional Review Board (IRB). Furthermore, all parents or guardians of participating students gave informed consent for participation, and students themselves assented to participate prior to Time 1 data collection. Permission was obtained from the USF IRB to perform the additional data analyses specified in this dissertation. Of note, data collection procedures did not appear to cause harm to students who participated at Time 1, and similarly did not cause harm at Time 2. Students who may have experienced distress during data collection due to limited English proficiency or due to severe impairments (i.e., students taught in self-contained classrooms via Exceptional Student Education) were not recruited for participation. Students were also informed during Time 1 data collection, and were reminded again during Time 2, that they were free to withdrawal from the study at anytime.

Participants' survey responses are being kept confidential. All students have been assigned a code number, which has been separated from their names, for use in an electronic database. All completed questionnaires from students and teachers at Time 1 and Time 2 are kept in a locked filing cabinet in a locked room to which only the Principal Investigator and trained members of the research team have access.

Chapter 4*:* Results

This chapter presents the results of the analyses conducted to answer the current study's research questions. First, the steps taken to ensure to ensure the validity of the data collected are detailed. Next, the preliminary analyses, including descriptive statistics and correlations among variables, are provided in order to describe the relationships between Time 1 and Time 2 mental health (i.e., subjective well-being, psychopathology, and the combination of these variables in regards to mental health group membership) and hypothesized predictor variables (i.e., Time 1 demographic, Time 1 and 2 intrapersonal, and Time 1 environmental factors) to determine the strength and direction of relationships between hypothesized predictor variables and students' mental health.

To address the first research question, patterns of movement of adolescents across the -dual-factor model across the study's two time points are described. To address the second, third, and fourth research questions, results concerning which specific demographic, intrapersonal, and environmental factors predict dual-factor model membership are presented.

Preliminary Analyses

Accuracy of data entry. Time 1 data entry occurred and was verified accurate in a previous stage of the current project (see Thalji, 2012). At Time 2, student self-report and teacher report data was hand-entered into a SPSS database by the author of this dissertation and one other graduate student member of the USF Positive Psychology research team. Every 10^{th} student survey packet was checked for data entry errors by a

member of the research team. In the event a data entry error was detected, the survey packets that immediately preceded and followed that survey packet were also checked for errors, until an error-free packet was uncovered. This process resulted in checking a total of 58 student survey packets (13.55% of the 428 student self-report packets). Each survey packet contained 369 variables (data entry points). A total of 12 errors were detected in the 58 packets (21,402 total possible data points), yielding an accuracy rate of 99.94%.

Every 10th teacher survey packet (teacher demographic form, BASC-TRS-A) was checked for data entry errors by a member of the research team. In the event a data entry error was detected, the survey packets that immediately preceded and followed that survey packet were also checked for errors, until an error-free packet was uncovered. This process resulted in checking a total of 66 teacher survey packets (15.42% of the 428 teacher-report packets). Each survey packet contained 157 variables (data entry items). A total of 15 errors were detected in the 66 packets (10,363 total possible data points), yielding an accuracy rate of 99.85%.

Validity of data. Participants' scores on the BASC-SRP-A *V* (validity) index were examined to determine the validity of survey data. The *V* index contains five "nonsensical items that may be marked because of carelessness or a failure to understand the questions or cooperate with the assessment process" (p. 71). The BASC manual considers a sum score of 3 to be in the "caution" range, and scores of 4 or above to be in the "extreme caution" range.

Sixteen participants had scores of 3. The research team manually inspected the raw protocols and all appeared valid (i.e., lacked evidence of haphazard responding), so all 16 of these participants were retained. Six participants had scores of 4 to 7. A visual

inspection of the protocols indicated that three of these participants should be removed from the sample because they endorsed at least one impossible item (e.g., "I have just returned from a 9-month trip on an ocean liner"), and appeared to respond in a haphazard manner on at least one additional measure. The remaining three participants were retained because they did not endorse any of the impossible items on the *V* index, and their pattern of responses on the other surveys appeared to be valid. This validity check resulted in a final sample of 425 participants available for data analysis.

Handling of missing data. A total of 146 of the 428 participants skipped at least one item on the student self-report packet. Conversely, 282 participants had zero missing data points. A total of 234 data points were missing: 21.96% of student participants skipped only one item, 7.01% skipped two items, 3.74% skipped three items, 0.93% skipped four items, 0.23% missed five items and 0.23% missed 10 items.

Missing data was handled via participant-specific mean item imputation. Specifically, if a participant had data for at least 80% of the items on a given subscale from a measure, then the participant's mean score on items completed within that subscale or measure was calculated and rounded to the nearest whole number. The calculated mean value for the subscale or measure was then substituted for the data point formerly coded as missing. Missing data on the BASC-SRP was handled in a slightly different manner, according to procedures specified in the BASC technical manual. Specifically, in situations in which 1 or 2 items were missing from a particular scale (e.g., Anxiety, Social Stress), the constant score for that specific scale (as specified in the BASC manual) was inserted in place of the formerly missing data point.

A total of 60 of the 428 participants were missing at least one item on the BASC-TRS-A. Conversely, 368 participants had zero missing data points. A total of 74 items were missed; 9.58% of participants had one missing item, 2.10% had two missing, 1.17% had two missing, 1.17% had three missing, and 0.23% had four missing. Missing data on the BASC-TRS-A was addressed as instructed in the BASC manual, as described in the section above. For example, if a teacher skipped one or two items that loaded on the BASC-TRS-A Hyperactivity scale, a value of zero (the constant value that the BASC manual specified should be used for the Hyperactivity scale) was substituted for the missing data point.

Data screening. Using Statistical Analysis Software (SAS; version 9.1), the valid and complete dataset (N = 425) was then screened for the presence of univariate and multivariate outliers. Univariate outliers were defined as participants scoring equal to or larger than four standard deviations from the group mean on any continuous variable of interest. Continuous variables in this study were mental health variables (i.e., Time 1 and Time 2 life satisfaction, Time 1 and Time 2 positive affect, Time 1 and Time 2 negative affect, Time 1 and Time 2 internalizing problems, Time 1 and Time 2 externalizing problems), intrapersonal predictors (Time 1 self-concept, Time 1 self-esteem, Time 2 agreeableness, Time 2 conscientiousness, Time 2 neuroticism, Time 2 extraversion, Time 2 openness), and environmental predictors (Time 1 parent relationships, Time 1 teacher relationships, Time 1 peer relationships, Time 1 attitudes toward school, Time 1 grade point averages, and Time 1 stressful life events). This process yielded 24 students out of 425 who were identified as extreme univariate outliers, due to their scores on the following variables: Time 1 externalizing problems composite (n = 10), Time 2

externalizing problems composite (n = 8), Time 1 negative affect scale (n = 2), Time 1 internalizing problems composite (n = 1),Time 1 academic perceptions scale (n = 1), Time 2 negative affect scale (n = 1), Time 2 openness scale (n = 1).

Seventeen participants out of 425 were identified as multivariate outliers. Specifically, the relationships between their scores on life satisfaction, positive and negative affect, and indicators of psychopathology at both time points, and mental health predictors exceeded the $p < .001$ criterion (χ^2 [23] = 49.73) for Mahalanobis distance (Tabachnick & Fidell, 2006). A review of the mental health characteristics of the identified multivariate outliers yielded mental health profiles that ranged from typical to unique. For instance, two multivariate outliers had a psychological profile consistent with the "symptomatic but content" mental health group (i.e., high levels of life satisfaction and positive affect, low negative affect, and high psychopathology at one or both time points). Five other participants identified as outliers had, at either Time 1 or Time 2, high levels of life satisfaction, low levels of negative affect, but low to moderate levels of positive affect. The other participants identified as outliers had unusual configurations amongst predictor variables. For example, six participants had either high levels of academic self-perceptions but with low GPA or had high GPA with low levels of academic self-perceptions. Three participants had high levels of neuroticism co-occurring with high levels of more adaptive personality characteristics, such as extraversion, agreeableness, and openness. Finally, one participant identified as an outlier had high levels of positive attitudes toward school in the presence of high negative attitudes toward teachers.

Despite being identified empirically as multivariate outliers, these 17 participants were retained in the dataset (*N*= 425) for all subsequent analyses for several reasons. First, it was not suspected that these participants' response patterns were a result of invalid responses due to the examination of the BASC validity index, followed by careful review of rating scales that were elevated on the validity index. Students and teachers that appeared to complete the measures of psychopathology in an invalid method were removed from the dataset. Additionally, data were carefully screened and checked to ensure accurate data entry, greatly minimizing the possibility of a data entry error. Moreover, these 17 observations identified as multivariate outliers are considered to be naturally occurring variances in adolescents' mental health profiles, and/or in associations between mental health and the specific predictors examined, and therefore are of particular interest to this current investigation.

Descriptive statistics. Descriptive statistics for the predictor and outcome variables of interest are reported in Table 2.

Table 2

Descriptive Statistics for Predictor and Outcome Variables (N = 425)

Variable	*M*	*SD*	Range	α	Skewness	Kurtosis
Predictor (Time 1, except for *personality variables)						
Self-Esteem	15.06	4.61	0.00-20.00	.87	-1.27	1.06
Academic Self-Perceptions	5.51	0.99	1.00-7.00	.90	-0.80	0.82
*Agreeableness	3.78	0.57	2.20-5.00	.78	-0.09	-0.49
*Conscientiousness	3.64	0.62	1.89-5.00	.82	0.05	-0.25
*Neuroticism	2.59	0.81	1.00-4.78	.87	0.18	-0.45
*Extraversion	3.71	0.73	1.33-5.00	.86	-0.48	0.18
*Openness	3.81	0.58	1.73-5.00	.81	-0.25	-0.21
Relations with Parents	18.62	6.79	0.00-29.00	.90	-0.36	-0.64
(Negative) Attitude to Teachers	7.42	4.81	0.00-23.00	.82	0.58	-0.20
Social Support from Classmates	4.15	1.02	1.08-6.00	.94	-0.08	-0.42
School Experiences: Attitudes toward School	5.24	1.42	1.00-7.00	.95	-0.99	0.65
School Experiences: Grade Point Average	3.02	0.66	0.71-4.00	-	-0.69	0.14
Stressful Life Events	4.23	2.82	0.00-14.00	-	0.92	0.61
Indicators of Mental Health						
Time 1 Life Satisfaction	4.26	1.01	1.00-6.00	.88	-0.45	-0.27
Time 1 Positive Affect	3.63	0.77	1.08-5.00	.90	-0.54	0.24
Time 1 Negative Affect	1.87	0.73	1.00-4.47	.91	1.07	0.52
Time 1 Internalizing Problems	41.53	28.30	0.00-150.00	.96	0.78	0.08
Time 1 Externalizing Problems	5.23	8.77	0.00-50.00	.94	2.26	5.12
Time 2 Life Satisfaction	4.48	1.00	1.00-6.00	.90	-0.58	-0.04
Time 2 Positive Affect	3.72	0.80	1.00-5.00	.92	-0.65	0.20
Time 2 Negative Affect	1.88	0.75	1.00-4.73	.93	1.14	0.76
Time 2 Internalizing Problems	38.38	26.79	0.00-131.00	.96	0.86	0.32
Time 2 Externalizing Problems	5.13	9.49	0.00-70.00	.96	3.10	11.94

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

Eighteen 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 were: self-esteem (skew = -1.27, kurtosis = 1.06), Time 1 negative affect (skew = 1.07, kurtosis = 0.52), Time 1 externalizing problems (skew = 2.26, kurtosis = 5.12), Time 2 negative affect (skew = 1.14, kurtosis = 0.76), and Time 2 externalizing problems (skew = 3.10, kurtosis = 11.94). Because logistic regression analyses (used to address the current study's research questions) do not assume normality of data, none of these variables were transformed.

Comparison of data from students at separate schools. The dataset analyzed in the current study was designed to include youth attending from two different (i.e., one rural, one urban) high schools. The following steps were taken to statistically determine if it is defensible to combine the data from School A and School B. First, correlation matrices between mental health indicators and mental health predictors were calculated and compared for participants from each school. Second, in order to determine whether or not the relationships between the variables of interest were similar for participants from these two schools, Fisher's *r*-to-*Z* transformations were utilized. Fisher's *r*-to-*Z* transformations indicate whether there is a significant difference between the Pearson product moment correlation coefficients for the two schools ($z > \pm 1.96$, $p < .05$, two tailed test), which would suggest that the relationships between variables for School A participants significantly differ from those for School B. Correlations between predictor variables (i.e., intrapersonal and environmental factors) and the outcome variables of interest (i.e., SWB, psychopathology), as well as the *p*-values associated with the Fisher's *r*-to-*Z* transformation, are presented in Table 3.

Table 3
Intercorrelations and Results from Fishers r-to-Z Transformations (N = 425)

Scale	Self-Esteem	Self-Perceptions	Agreeable-ness	Conscient-iousness	Neuroticism	Extraversion	Openness	Relations with Parents	Attitude to Teachers	Classmate Support	Attitudes toward School	GPA	Stressful Life Events
School A participants (*n*= 212)													
T1LS	0.52**	0.35**	0.27**	0.24*	-0.44**	0.21*	0.15*	0.57*	-0.35**	0.30**	0.27**	0.20*	-0.27**
T1PA	0.41**	0.31**	0.16*	0.35**	-0.29**	0.39**	0.39**	0.33**	-0.22*	0.46**	0.23*	0.08	-0.17*
T1NA	-0.39**	-0.11	-0.15*	-0.06	0.47**	-0.10	0.01	-0.30**	0.15*	-0.07	-0.10	0.00	0.10
T1Int.	-0.63**	-0.34**	-0.20*	-0.13	0.57**	-0.19*	0.00	-0.50**	0.41**	-0.34**	-0.28**	-0.13	0.23*
T1Ext.	0.14*	0.02	-0.11	-0.05	-0.05	0.14*	-0.05	0.00	0.16*	-0.04	0.06	-0.27**	0.14*
T2LS	0.45**	0.33**	0.30**	0.32**	-0.65**	0.40**	0.24*	0.39**	-0.17*	0.32**	0.21*	0.20*	-0.12
T2PA	0.32**	0.33**	0.24*	0.31**	-0.46**	0.61**	0.39**	0.20*	-0.15*	0.33**	0.26*	0.10	-0.03
T2NA	-0.42**	-0.09	-0.15*	-0.14*	0.68**	-0.29**	-0.06	-0.33**	0.13*	-0.21*	-0.09	0.07	0.12
T2Int.	-0.46**	-0.26*	-0.26*	-0.22*	0.78**	-0.39**	-0.04	-0.40**	0.27**	-0.32**	-0.19*	-0.04	0.10
T2Ext.	-0.02	-0.07	0.00	0.02	-0.03	0.26*	-0.07	0.04	0.16*	0.02	0.04	-0.23*	0.10
School B participants (*n*= 213)													
T1LS	0.66**	0.22*	0.18*	0.23*	-0.43**	0.30**	0.18*	0.62**	-0.32**	0.34**	0.32**	0.10	-0.35**
T1PA	0.50**	0.39**	0.18*	0.34**	-0.23*	0.43**	0.36**	0.50**	-0.37**	0.50**	0.39**	0.03	-0.17*
T1NA	-0.58**	-0.23*	-0.06	-0.14*	0.40**	-0.21*	-0.10	-0.32**	0.36**	-0.24*	-0.23*	0.02	0.31**
T1Int.	-0.67**	-0.33**	-0.15*	-0.16*	0.55**	-0.25*	-0.13	-0.55**	0.57**	-0.33**	-0.33**	-0.19*	0.39**
T1Ext.	0.11	-0.00	-0.17*	-0.04	0.00	0.11	-0.06	0.00	0.10	0.06	-0.02	-0.34**	0.06
T2LS	0.40*	0.12	0.26*	0.26**	-0.68**	0.35**	0.24*	0.42**	-0.32**	0.27**	0.20*	0.09	-0.28**
T2PA	0.35**	0.26*	0.30**	0.37**	-0.51**	0.57**	0.48**	0.32**	-0.30**	0.37**	0.18*	0.00	-0.07
T2NA	-0.37**	-0.11	-0.17*	-0.16*	0.73**	-0.22*	-0.17*	-0.28**	0.30*	-0.14*	-0.09	0.01	0.19*
T2Int.	-0.50**	-0.21*	-0.21*	-0.19*	0.75**	-0.29**	-0.20*	-0.41**	0.37**	-0.23*	-0.22*	-0.10	0.33**
T2Ext.	0.15*	-0.04	-0.25*	-0.04	0.02	0.13*	-0.07	-0.04*	0.20*	0.03	0.09	-0.25*	0.02
p-values from Fishers r-to-z Transformations													
T1LS	0.03*	0.15	0.33	0.91	0.90	0.32	0.75	0.43	0.73	0.65	0.58	0.58	0.36

Table 3 (Continued)

T1PA	0.25	0.35	0.83	0.90	0.51	0.62	0.72	0.03*	0.09	0.60	0.07	0.61	1.00
T1NA	0.01*	0.20	0.35	0.41	0.38	0.25	0.26	0.82	0.02*	0.07	0.17	0.84	0.02*
T1Int.	0.48	0.45	0.60	0.76	0.76	0.52	0.18	0.48	0.03*	0.90	0.58	0.53	0.07
T1Ext.	0.76	0.42	0.53	0.92	0.61	0.76	0.92	1.00	0.54	0.31	0.41	0.43	0.40
T2LS	0.54	0.05	0.66	0.50	0.58	0.55	1.00	0.71	0.10	0.58	0.91	0.25	0.09
T2PA	0.73	0.43	0.51	0.49	0.50	0.53	0.25	0.19	0.11	0.64	0.39	0.30	0.68
T2NA	0.54	0.83	0.83	0.83	0.31	0.44	0.25	0.58	0.07	0.46	1.00	0.47	0.47
T2Int.	0.60	0.59	0.59	0.75	0.46	0.25	0.09	0.90	0.25	0.32	0.75	0.54	0.01*
T2Ext.	0.08	0.78	0.01*	0.54	0.61	0.16	0.54	0.41	0.67	0.92	0.61	0.83	0.41

Note. LS = life satisfaction; PA = positive affect; NA = negative affect; Int. = internalizing problems; Ext. = externalizing problems.
*$p < .05$, **$p < .001$

The direction and magnitude of the correlations obtained for the sample of participants in School A (n = 212) and the participants recruited from School B (n = 213) were comparable in all except for 8 out of 130 cases. While there appears to be some statistically significant differences between these two schools (e.g., there is a stronger relationship between life satisfaction and self-esteem among School B students [r = .52] compared to School A students [r = .66]), these differences are not necessarily clinically significant. In the relationship between life satisfaction and self-esteem, for example, both correlation coefficients are positive and large. Furthermore, such differences in relationships were not surprising given that these two schools were purposefully selected for participant recruitment since the schools different in terms of geographic location and ethnic diversity. However, due to the finding that these comparisons did not yield statistically similar situations between *all* predictor and outcome variables for the two schools, subsequent analyses employ the discrete variable "school" as a covariate.

Measure reliability. Alpha coefficients, an index of reliability, were calculated for each scale in this study to provide information on measurement error. An alpha coefficient of .70 or above is indicative of adequate internal consistency (Nunnally, 1978).

Both scales of interest on the SAAR-R administered at Time 1, academic perceptions scale and attitudes to school scale showed high internal consistency with alpha coefficients of .90 and .95, respectively. The classmate support scale on the CASSS administered at Time 1 also showed good internal consistency (α = .94)

All five scales on the APSI administered at Time 2 yielded acceptable internal consistency: agreeableness (α = .78), consciousness (α = .82), neuroticism (α = .87), extraversion (α = .86), and openness (α = .81).

SWB measures administered at both time points showed strong internal consistency. The SLSS measure demonstrated high internal consistency with an alpha coefficient of .88 at Time 1 and .90 at Time 2. The internal consistency of the PANAS-C was also high for both the positive affect scale and negative affect scale at Time 1 (α = .90, α = .92, respectively) and Time 2 (α = .91, α = .93, respectively).

The BASC-SRP demonstrated high internal consistency on the internalizing composite for both Time 1 (α = .96) and Time 2 (α = .96). The two BASC-SRP scales from Time 1 analyzed as predictors also showed good internal consistency: self-esteem (α = .87), and attitude to teachers (α = .82).

The BASC-TRS demonstrated high internal consistency on the externalizing problems composite at both Time 1 and Time 2 (α = .94, α = .96). Notably, one BASC-TRS item, which loaded onto the Externalizing Problems (via the conduct problems scale), had no variability at Time 2 (i.e., all participants had the same response) and was omitted from the internal consistency analyses.

Internal consistency was not calculated for two predictor variables (i.e., GPA, stressful life events) because of the nature of the indicator. With respect to GPA, since this is a composite score that yields only a single total score (average across all classes) and is consistently analyzed in its mean form (GPA in all classes taken), it would be artificial to examine associations between grades earned in a math course and grades in an English course because subsequent analysis of the GPA variable would be conducted

regardless of the internal consistency in achievement across classes. For the Life Events Checklist, it would not be unexpected for a participant to endorse one of the items, such as parents separated, and not another item, death of a close friend, even though both assess stressful events; thus, responses to the items which comprise the composite variable (total number of stressful experiences encountered) are not expected to necessarily be consistent.

Correlational analyses. Pearson product-moment correlation coefficients were calculated between all continuous variables to determine the nature and strength of relationships between predictor and outcome variables within the total sample. Table 1 presents correlations among all continuous variables examined in the current study. Statistical significance was determined using an alpha level of .05. As expected, Time 1 life satisfaction was positively related to both Time 1 positive affect (r = .46, p <.001), and Time 2 positive affect (r = .33, p <.001) and negatively related to Time 1 negative affect (r = -.52, p <.001), Time 2 negative affect (r = -.37, p <.001), Time 1 internalizing problems (r = -.67, p <.001), and Time 2 internalizing problems (r = -.47, p <.001). Similarly, Time 2 life satisfaction was positively related to both Time 1 positive affect (r = .52, p <.001), and Time 2 positive affect (r = .57, p <.001) and negatively related to Time 1 negative affect (r = -.31, p <.001), Time 2 negative affect (r = - .60, p <.001), Time 1 internalizing problems (r = -.46, p <.001), and Time 2 internalizing problems (r = -.66, p <.001). The other indicator of psychopathology, teacher-rated externalizing problems, was not significantly related to any other indicator of mental health examined in the current study (i.e., life satisfaction, positive affect, negative affect, or internalizing problems) at neither Time 1 nor Time 2. All mental health variables measured at both

time points via student self-report were strongly correlated across-time, including large correlations between: Time 1 and Time 2 life satisfaction (r = .59, p <.001), Time 1 and Time 2 positive affect (r = .52, p <.001), and Time 1 and Time 2 internalizing problems (r = .67, p <.001). The associations between Time 1 and Time 2 externalizing problems (rated by two different teachers) was moderate (r = .36, p <.001), as was the correlation between Time 1 and Time 2 negative affect (r = .43, p <.001),

Of particular interest are relationships between mental health indicators and predictor variables. The mental health outcome to be explored in relation to the predictor variables is comprised of Time 1 and Time 2 indicators of life satisfaction, affect, and psychopathology. Time 1 and Time 2 life satisfaction was significantly correlated in a positive direction with the following variables to be considered in subsequent analyses as predictors: Time 1 self-esteem (r = .61 and .42, respectively, p < .001), Time 1 academic self-perceptions (r = .28 and .23, respectively, p < .001), Time 2 agreeableness (r = .23 and .28, respectively, p < .001), Time 2 consciousness (r = .23 and .29, respectively, p < .001), Time 2 extraversion (r = .26 and .38, respectively, p < .001), Time 2 openness (r = .17 and .24, respectively, p < .05), Time 1 relations with parents (r = .60 and .41, respectively, p < .001), Time 1 classmate support (r = .32 and .29, respectively, p < .001), Time 1 attitude toward school (r = .29 and .20, respectively, p < .001), and Time 1 grade point average (r = .15 and= .14, respectively, p < .05).

Time 1 and Time 2 life satisfaction was significantly correlated in a negative direction with the following variables: Time 2 neuroticism (r = - .44 and -.67, respectively, p < .001), Time 1 (negative) attitude to teachers (r = -.33 and -.25, respectively, p < .001), and Time 1 stressful life events (r = - .31 and -.21, respectively, p

< .001).

Positive affect at Time 1 and Time 2 was significantly correlated in a positive direction with: Time 1 self-esteem *(r* = .46 and .34, respectively, *p* < .001), Time 1 academic self-perceptions (*r* = .35 and .29, respectively, *p* < .001), Time 2 agreeableness (*r* = .17 and .27, respectively, *p* < .05), Time 2 consciousness (*r* = .34 and .33, respectively, *p* < .001), Time 2 extraversion (*r* = .40 and .58, respectively, *p* < .001), Time 2 openness (*r* = .37 and .44, respectively, *p* < .001), Time 1 relations with parents (*r* = .42 and .26, respectively, *p* < .001), Time 1 classmate support (*r* = .48 and .35, respectively, *p* < .001), and Time 1 attitude toward school (*r* = .25 and .22, respectively, *p* < .001).

Time 1 and Time 2 positive affect was significantly correlated in a negative direction with: Time 2 neuroticism (*r* = - .26 and -.49, respectively, *p* < .001), and Time 1 (negative) attitude to teachers (*r* = -.30, *p* < .001). Time 1 positive affect was significantly correlated with Time 1 stressful life events (*r* = - .17, *p* < .001), but Time 2 positive affect was not. Time 2 positive affect was significantly correlated in a negative direction with Time 2 neuroticism (*r* = - .49, *p* < .001), and Time 1 (negative) attitude to teachers (*r* = -.23, *p* < .001) only. Neither Time 1 nor Time 2 positive affect was significantly related to Time 1 student grade point average.

Time 1 and Time 2 negative affect was significantly correlated in a positive direction with: Time 2 neuroticism (*r* = .43 and .70, respectively, *p* < .001), Time 1 (negative) attitude to teachers (*r* = .26 and .22, respectively, *p* < .001), and Time 1 stressful life events (*r* = .21 and .25, respectively, *p* < .001). Time 1 and Time 2 negative affect was significantly correlated in a negative direction with: Time 1 self-esteem *(r* = -

.49 and -.39, respectively, $p < .001$), Time 1 academic self-perceptions (r = -.17 and -.10, respectively, $p < .05$), Time 2 agreeableness (r = -.10 and -.16, respectively, $p < .05$), Time 2 consciousness (r = -.10 and -.15, respectively, $p < .05$), Time 2 extraversion (r = -.15 and -.26, respectively, $p < .05$), Time 1 relations with parents (r = -.31 and -.30, respectively, $p < .001$), and Time 1 classmate support (r = -.16 and -.17, respectively, $p < .05$). Time 1 negative affect was significantly correlated with Time 1 attitude toward school (r = -.18, $p < .05$) though Time 2 negative affect was not. Neither Time 1 nor Time 2 negative affect was significantly related to Time 2 openness or Time 1 grade point average.

Time 1 and Time 2 internalizing problems (raw total internalizing symptoms composite) were significantly correlated in a positive direction with: Time 2 neuroticism (r = .56 and .76, respectively, $p < .001$), Time 1 (negative) attitude to teachers (r = .49 and .32, respectively, $p < .001$), and Time 1 stressful life events (r = .31 and .22, respectively, $p < .001$). Time 1 and Time 2 internalizing problems were significantly correlated in a negative direction with: Time 1 self-esteem (r = -.65 and -.48, respectively, $p < .001$), Time 1 academic self-perceptions (r = -.33 and -.23, respectively, $p < .001$), Time 2 agreeableness (r = -.17 and -.23, respectively, $p < .05$), Time 2 consciousness (r = -.14 and -.20, respectively, $p < .05$), Time 2 extraversion (r = -.33 and -.34, respectively, $p < .001$), Time 1 relations with parents (r = -.53 and -.40, respectively, $p < .001$), Time 1 classmate support (r = -.33 and -.26, respectively, $p < .001$), and Time 1 attitude toward school (r = -.31 and -.21, respectively, $p < .001$). Time 1 internalizing problems were significantly related to Time 1 grade point average (r = -.17, $p < .05$), but Time 2 internalizing problems were not. Time 2 internalizing problems

were related to Time 2 openness (r = -.14, p < .05), but Time 1 internalizing problems were not.

Time 1 and Time 2 externalizing problems (raw total externalizing symptoms composite) were significantly correlated in a positive direction with Time 2 extraversion (r = .12 and .20, respectively, p < .05), and Time 1 (negative) attitude to teachers (r = .13 and .18, respectively, p < .05). Time 1 externalizing problems were significantly related to self-esteem (r = .12, p < .05), but Time 2 externalizing problems were not. Time 1 and Time 2 externalizing problems were significantly correlated in a negative direction with agreeableness (r = -.14 and -.13, respectively, p < .05), and grade point average (r = -.31 and -.24, respectively, p < .001). Neither Time 1 nor Time 2 externalizing problems were significantly related to academic self-perceptions, conscientiousness, neuroticism, openness, relations with parents, classmate support, attitude toward school, or stressful life events.

Stability of Mental Health as Yielded in a Dual-Factor Model

To explore the 1-year stability of adolescent mental health status and answer the current study's first research question, students were classified into mental health groups for each of the two time points. National norms provided for the commercially-available measure of psychopathology (i.e., BASC) and sample-specific norms for the indicators of well-being were referenced to classify students into mental health groups based on their scores on measures of psychopathology and well-being. As performed in previous research (Suldo & Shaffer, 2008), an aggregate SWB variable was calculated by standardizing and summing scores for life satisfaction and positive affect, and then subtracting negative affect scores.

To determine the existence and sample size of the four proposed groups within a dual-factor model of mental health at each time point, students' scores on the aggregate SWB variable and the BASC-2 were examined.

Time 1 mental health group. The percentage of the sample that fell into each of the four mental health groups at Time 1 has been previously reported (Suldo, Thalji, Frey, McMahan, Chappel, & Fefer, 2011; Thalji, 2012). To summarize, all 500 original participants were classified into groups based on their mental health problems. High psychopathology was defined according to published gender-specific norms for the BASC-2 (Reynolds & Kamphaus, 2004). Scores within the "at-risk" or "clinically significant" range (at or above a *T*-score of 60) on either the self-reported internalizing symptoms or the teacher-rated externalizing symptoms were grouped as high psychopathology. The remaining students who scored in the normal range of symptoms (i.e., *T*-scores below 60) were classified as low psychopathology.

Since norms for SWB have not been developed, decision points for high and low SWB correspond with the proportion of students classified as having high or low psychopathology. By using this cut-point selection, every participant classified as high psychopathology can also potentially be classified as low SWB, consistent with a traditional model of mental health in which SWB and psychopathology are presumed to be opposite ends of a single continuum of mental health. Taking the traditional model of mental health into account ensures that the emergence of the symptomatic but content and vulnerable subgroups cannot be attributed to different cut-points. At Time 1, all students above the 26.4 percentile on SWB (percentile chosen because 26.4%, or $n = 132$, of the 500 students who participated in Time 1 identified as high psychopathology) were

classified as average to high SWB, and the remaining students below the same percentile were classified as low SWB. Students' original Time 1 mental health statuses, which are based on the cut-points for the original 500 participant sample, were preserved rather than re-calculated based on the longitudinal sample of 425 participants to be consistent with different examinations of a single database. Table 4 compares with proportions of students from the original sample (N = 500) that were distributed amongst the four groups with the number of students in each group that remained in the longitudinal sample. A chi-square test for independence indicated no significant differences between the original 500 participants sample and the longitudinal 425 participants sample in terms of Time 1 mental health group representation, χ^2 (3, N = 500) = 3.22, p = .36.

Table 4

Proportion of Participants Classified in Each Mental Health Group at Time 1

	Complete Mental Health		**Troubled**		**Vulnerable**		**Symptomatic but Content**	
Sample	*n*	%	*n*	%	*n*	%	*n*	%
Total (*N* = 500)	311	62.20	75	15.00	57	11.40	57	11.40
Longitudinal (*N* = 425)	270	63.53	61	14.35	47	11.06	47	11.06

Time 2 mental health group. Identical procedures were used at Time 2 to define high psychopathology (i.e., T-score of 60 or higher on either internalizing or externalizing mental health problems). The cut-point for low vs. average/high SWB was based on the percent of the remaining sample (*N* = 425) with high psychopathology at Time 2. Since 23.5% of the sample (100 of 425 participants) was identified as high psychopathology, the Time 2 SWB composite score (created by subtracting participants' standardized Time 2 negative affect scores from the sum of their standardized Time 2 life satisfaction and Time 2 positive affect scores) that corresponded to that same percentile served as the cut-point such that the 23.5% of participants with Time 2 SWB composite scores below that value were labeled "low SWB" at Time 2 and the 76.5% of participants with Time 2 SWB composite score above that value were labeled "average to high SWB" at Time 2. The distribution of the 425 longitudinal participants in the four mental health groups at Time 1 and Time 2 is summarized in Figure 1.

After students were assigned to one of the four mental health groups for both time points, descriptive analyses were employed to summarize the proportion of students who remain in the same group over time and the sample proportions that change groups.

Figure 3 depicts the different possible combinations of movement across groups, how many students fell into each subgroup.

Out of the 425 students in the longitudinal sample, 60.94% (n = 259) remained in their same group over both time points. Sixty-eight (16.00%) participants showed changes in only their dichotomized psychopathology levels, 60 (14.12%) showed changes in only their dichotomized SWB levels, and 38 (8.94%) showed changes in levels of both psychopathology and SWB. Of the total sample, 53 (12.47%) moved into a higher SWB group (e.g., Vulnerable to Complete Mental Health or Troubled to Symptomatic but Content), 45 (10.59%) moved into a lower SWB group (e.g., Complete Mental Health to Vulnerable or Symptomatic but Content to Troubled), 49 (11.53%) moved into a higher psychopathology group (e.g., Complete Mental Health to Symptomatic but Content or Vulnerable to Troubled), and 57 (13.41%) moved into a lower psychopathology group (e.g., Symptomatic but Content to Complete Mental Health, Troubled to Vulnerable).

The Complete Mental Health group showed the most stability over time with the majority (79.63%, n = 215) of the 270 students in this group at Time 1 remaining in this group at Time 2. Ten students (3.71%) moved into the Troubled group at Time 2 (i.e., evidenced a change in both SWB and psychopathology), 18 (6.67%) moved into the Vulnerable group (i.e., experienced a change in SWB level only), and 27 (10.00%) moved into the Symptomatic but Content group (i.e., developed clinical levels of psychopathology, but SWB remained intact).

Out of the 61 students in the Troubled group at Time 1, 22 (36.07%) remained in this group at Time 2. Fifteen students (24.59%) moved to the Complete Mental Health group (i.e., evidenced increased SWB and diminished psychopathology), and 12 students

(19.67%) went to each the Vulnerable and Symptomatic but Content groups (i.e., changed only their levels of psychopathology or SWB, respectively).

Students in the Vulnerable group at Time 1 were most likely to move to the Complete Mental Health group at Time 2; specifically, 21 of the 47 students (44.68%) initially in the Vulnerable group changed to average/high SWB at Time 2 (while maintaining low levels of psychopathology). Only 14 of the 47 students (29.79%) remained in the Vulnerable group across time, seven (14.98%) moved to the Troubled group (i.e., developed clinical levels of psychopathology coupled with chronically low levels of SWB), and five (10.63%) moved to the Symptomatic but Content group (i.e., change in levels of SWB and psychopathology).

Of the 47 students who were Symptomatic but Content at Time 1, almost half (*n* = 22; 46.81%) moved to the Complete Mental Health group at Time 2 (i.e., no longer had clinical levels of psychopathology; levels of SWB remained average to high). Eight (17.02%) remained in the Symptomatic but Content group, nine (19.15%) moved to the Troubled group (i.e., levels of SWB became low), and eight (17.02%) moved to the Vulnerable group (i.e., change in both SWB and psychopathology).

		Time 1 Mental Health			
Time 2 Mental Health		**Complete Mental Health (*n* = 270; 63.53%)**	**Troubled (*n* = 61; 14.35%)**	**Vulnerable (*n* = 47; 11.06%)**	**Symptomatic but Content (*n* = 47; 11.06%)**
	Complete Mental Health (*n* = 273; 64.24% of sample)	Stable *Subgroup 1* 50.59%	SWB Increases, PTH Decreases *Subgroup 8* 3.53%	SWB Increases *Subgroup 11* 4.94%	PTH Decreases *Subgroup 14* 5.18%
	Troubled (*n* = 48; 11.29%)	SWB Decreases, PTH Increases *Subgroup 5* 2.35%	Stable *Subgroup 2* 5.18%	PTH Increases *Subgroup 12* 1.65%	SWB Decreases *Subgroup 15* 2.12%
	Vulnerable (*n* = 52; 12.24%)	SWB Decreases *Subgroup 6* 4.23%	PTH Decreases *Subgroup 9* 2.82%	Stable *Subgroup 3* 3.29%	SWB Decreases, PTH Decreases *Subgroup 16* 1.88%
	Symptomatic but Content (*n* = 52; 12.24%)	PTH Increases *Subgroup 7* 6.35%	SWB Increases *Subgroup 10* 2.82%	SWB Increases, PTH Increases *Subgroup 13* 1.18%	Stable *Subgroup 4* 1.88%

Figure 3. Movement Patterns in Mental Health Groups Yielded in the Dual-Factor Model across Two Time Points (N = 425)
Note. SWB=Subjective Well-Being; PTH=Psychopathology. Shaded boxes represent stable groups.

Predictors of Time 2 mental health group membership. Logistic regression procedures were utilized to answer the second, third, and fourth questions regarding demographic, intrapersonal, and environmental predictors of Time 2 mental health status. Logistic regression enables researchers to predict a discrete outcome (in this study, group membership) from a set of variables (Tabachnick & Fiddell, 2006). The four demographic predictors were SES (continuous variable: composite score of student report of free or reduced price lunch, father's level of education, and mother's level of

education), age (continuous variable: years old), gender (discrete variable with two levels, with females as the reference dummy), and race/ethnicity (discrete variable with six levels, with Caucasian as the reference dummy). All seven intrapersonal predictors were continuous: global self-esteem, academic self-perceptions, and personality dimensions (agreeableness, conscientiousness, neuroticism, extraversion, openness). All six environmental predictors were continuous: relations with parents, attitudes to teachers, classmate support, attitudes toward school, GPA, and stressful life events.

Continuous Complete Mental Health (research question 2). Logistic regression analyses were performed to determine what factors predicted which students remained in the Complete Mental Health group. Only students who were in the Complete Mental Health group at Time 1 (n = 270) were included in this analysis. The outcome of this logistic regression was whether students remained in the Complete Mental Health Group at Time 2 (n = 215) or moved to Troubled, Vulnerable, or Symptomatic but Content groups (n = 55). The model's independent variables were the previously specified demographic, intrapersonal, and environmental predictors, as well as school. The full model containing all predictors was statistically significant, χ^2 (22, n = 270) = 69.80, p < .001, indicating that the model is able to differentiate between participants who remained in the Complete Mental Health group from those whose mental health worsened. The model had an overall success rate of 80.4%. Specifically, the model correctly predicted 93.50% of students with Continuous Complete Mental Health. However, the model correctly predicted only 29.10% of the students who had Complete Mental Health at Time 1 but became a different mental health profile at Time 2. Table 5 presents the statistical significance and unique contribution of each independent variable in the model.

SES composite ($p = .025$) and neuroticism ($p < .001$) were the only two significant predictors. Students with higher SES composites have twice the odds of remaining Complete Mental Health than students with lower SES composites, while students with lower levels of neuroticism had more than five times the odds than those with higher levels of remaining in the Complete Mental Health group.

Table 5
Logistic Regression Analysis of Movement from Time 1 Complete Mental Health to Time 2 Complete Mental Health as a Function of Demographic, Intrapersonal, and Environmental Predictors Examined Simultaneously, N = 270

Predictor	*B*	Standard Error	Wald χ^2 - test	Odds Ratio	*p*
School 2	0.31	0.40	0.58	1.36	.446
Males	-0.24	0.41	0.33	0.79	.568
African American	0.96	0.61	2.46	2.61	.117
Asian	0.04	0.98	0.00	1.04	.965
Hispanic	-0.75	0.51	2.18	0.47	.140
Other	0.11	1.39	0.01	1.12	.935
Multi-Ethnic	-0.31	0.74	0.17	0.74	.679
Age	0.23	0.20	1.29	1.26	.256
SES	0.69	0.31	5.03	1.99	.025*
Academic Self-Perceptions	-0.03	0.28	0.01	0.97	.918
Self-Esteem	0.02	0.07	0.12	1.02	.725
Agreeableness	-0.16	0.44	0.13	0.85	.719
Conscientiousness	-0.41	0.43	0.92	0.66	.337
Neuroticism	-1.77	0.34	26.89	0.17	<.0001**
Extraversion	0.56	0.35	2.49	1.75	.114
Openness	0.21	0.52	0.17	1.24	.683
Attitudes toward School	0.10	0.15	0.38	1.10	.537
GPA	0.62	0.35	3.20	1.87	.074
Relations with Parents	0.00	0.03	0.01	1.00	.916
(Negative) Attitude to Teachers	-0.05	0.05	0.85	0.95	.356
Classmate Support	-0.23	0.23	1.07	0.79	.302
Stressful Life Events	0.06	0.07	0.65	1.06	.419

Note. Higher odds ratios reflect a greater likelihood of being Continuously Complete Mental Health as scores on the specified variable increase, whereas odds ratio values less than one indicate a lower score on the variable is predictive of membership in the Continuously Complete Mental Health group.
*$p < .05$, **$p < .001$.

To determine the influence of each predictor without keeping the others constant, a series of 22 logistic regression models were conducted, each with one predictor only. Table 6 presents these findings. Eight of the 22 single-predictor models were statistically significant: African American χ^2 (1, N = 270) = 5.10, p = .024; Academic Self-Perceptions, χ^2 (1, N = 270) = 4.21, p =.040; Agreeableness, χ^2 (1, N = 270) = 5.72, p = .017; Neuroticism, χ^2 (1, N = 270) = 33.77, p < .001; Extraversion, χ^2 (1, N = 270) = 11.27, p = .001; GPA, χ^2 (1, N = 270) = 6.87, p = .009; Relations with Parents, χ^2 (1, N = 270) = 4.35, p =.037; and Attitude to Teachers, χ^2 (1, N = 270) = 4.61, p = .032. The effect of neuroticism was the same whether analyzed alone or considered along with the other predictors; specifically, students with lower levels of neuroticism have five times the odds of those with higher levels of remaining in the Complete Mental Health group. The other factors only predicted the outcome (continuously Complete Mental Health vs. change to sub-optimal mental health group) when the other predictor factors were excluded from the model, such that the variance shared amongst the predictor variables was removed and the effect of a single factor was examined in isolation. In the single-predictor model, African-American students had nearly three times the odds of remaining Complete Mental Health than Caucasian students, students with more positive levels of academic self-perceptions had 1.5 times the odds of remaining Complete Mental Health than those with lower levels, students with higher levels of agreeableness had twice the odds of those with lower levels of remaining Complete Mental Health, students with higher levels of extraversion had twice the odds of those with lower levels of remaining Complete Mental Health, students with higher GPAs had twice the odds of those with lower GPAs of remaining Complete Mental Health, students with more favorable

relations with parents had 1.05 times the odds of remaining Complete Mental Health than those with lower ratings, and students with positive attitudes toward teachers had 1.07 times the odds of those with more negative attitudes towards teachers of remaining Complete Mental Health.

Table 6
Logistic Regression Analyses of Movement from Time 1 Complete Mental Health to Time 2 Complete Mental Health as a Function of Demographic, Intrapersonal, and Environmental Predictors Examined in Isolation, N = 270

Predictor	*B*	Standard Error	Wald χ^2 - test	Odds Ratio	*p*
School 2	0.03	0.30	0.01	1.01	.933
Males	-0.12	0.31	0.14	0.90	.709
African American	1.03	0.46	5.10	2.81	.024*
Asian	0.11	0.82	0.02	1.12	.889
Hispanic	-0.08	0.32	0.06	0.93	.813
Other	0.27	1.16	0.05	1.31	.817
Multi-Ethnic	-0.21	0.57	0.14	0.81	.712
Age	-0.03	0.16	0.04	0.97	.846
SES	0.41	0.21	3.79	1.50	.052
Academic Self-Perceptions	0.35	0.17	4.21	1.42	.040*
Self-Esteem	0.05	0.05	0.97	1.05	.325
Agreeableness	0.68	0.29	5.72	1.98	.017*
Conscientiousness	0.28	0.25	1.22	1.32	.270
Neuroticism	-1.57	0.27	33.77	0.21	< .001**
Extraversion	0.82	0.25	11.27	2.28	.001*
Openness	0.50	0.29	3.04	1.65	.081
Attitudes toward School	0.16	0.11	2.12	1.18	.146
GPA	0.60	0.23	6.87	1.83	.009*
Relations with Parents	0.05	0.02	4.35	1.05	.037*
(Negative) Attitude to Teachers	-0.07	0.03	4.61	0.93	.032*
Classmate Support	0.90	0.16	0.36	1.10	.547
Stressful Life Events	0.00	0.06	0.02	0.99	.899

Note. Higher odds ratios reflect a greater likelihood of being Continuously Complete Mental Health as scores on the specified variable increase, whereas odds ratio values less than one indicate a lower score on the variable is predictive of membership in the Continuously Complete Mental Health group.
*$p < .05$, **$p < .001$.

Continuous Troubled status (research question 3). To determine what factors predicted which students remained in the Troubled group, logistic regression analysis were performed. Only students who were in the Troubled group at Time 1 (n = 61) were included in this analysis. The outcome of this logistic regression was whether or not students remained in the Troubled group (n = 22) at Time 2 or moved to a different group (n = 39) at Time 2. The model's independent variables were the previously specified demographic, intrapersonal, and environmental predictors. One change in predictor variables involved the race/ethnicity groups examined; specifically, since the "Asian" and "Other" ethnicity categories each had only one participant in the Troubled group at Time 1, these two variables were removed from the logistic regression analyses to avoid separation of data points.

The full model containing all predictors was statistically significant, χ^2 (20, N = 61) = 49.83, p =.00, indicating that the model is able to differentiate between participants who remained in the Troubled group from those initially Troubled students who did not. The model had an overall success rate of 63.9% and correctly predicted 59.1% of students with Continuously Troubled Mental Health and correctly predicted 66.7% of students who were Troubled at Time 1 only. Table 7 presents the statistical significance and unique contribution of each independent variable in the model. None of the predictors were statistically significant when the commonality amongst predictor variables was considered.

Table 7
Logistic Regression Analysis of Movement from Time 1 Troubled to Time 2 Troubled as a Function of Demographic, Intrapersonal, and Environmental Predictors Examined Simultaneously, N = 61

Predictor	*B*	Standard Error	Wald χ^2 - test	Odds Ratio	*p*
School 2	-0.39	2.15	0.03	0.68	.857
Male	-2.72	2.48	1.20	0.07	.273
African American	-6.04	5.53	1.19	0.00	.275
Hispanic	0.36	2.30	0.02	1.44	.875
Multi-Ethnic	-1.06	2.10	0.25	0.35	.615
Age	-1.39	1.32	1.11	0.25	.291
SES	-1.63	1.88	0.75	0.20	.387
Academic Self-Perceptions	0.80	0.87	0.84	2.23	.358
Self-Esteem	-0.14	0.19	0.53	0.87	.467
Agreeableness	-2.38	2.50	0.91	0.09	.340
Conscientiousness	1.48	1.86	0.64	4.40	.425
Neuroticism	8.43	4.34	3.77	>1000.00[a]	.052
Extraversion	-2.14	1.14	3.55	0.12	.060
Openness	1.90	1.88	1.02	6.71	.312
Attitudes toward School	-0.45	0.67	0.44	0.64	.505
GPA	-0.39	1.67	0.05	0.68	.815
Relations with Parents	-0.02	0.14	0.02	0.98	.878
(Negative) Attitude to Teachers	0.23	0.21	1.22	1.26	.269
Classmate Support	0.63	0.78	0.65	1.88	.422
Stressful Life Events	0.39	0.34	1.34	1.48	.247

Note. Higher odds ratios reflect a greater likelihood of being Continuously Troubled as scores on the specified variable increase, whereas odds ratio values less than one indicate a lower score on the variable is predictive of membership in the Continuously Troubled group.
[a]Though large in magnitude, this odds ratio is not statistically significant.
*$p < .05$, **$p < .001$.

To determine the influence of each predictor without keeping the others constant, logistic regression analysis was again used. A total of 20 different models, each with one predictor to account for all 20 predictors, were analyzed. Table 8 presents these findings. Three models of the 20 utilizing a single predictor were found statistically significant: Neuroticism, χ^2 (1, N = 61) = 12.85, $p < .001$; Extraversion, χ^2 (1, N = 61) = 6.66, p =

.010; and GPA, χ^2 (1, N = 61) = 4.39, p = .036. Specifically, students with higher levels of neuroticism have nearly 11 times the odds to remain continuously Troubled than students with lower levels of neuroticism, students with lower levels of extraversion have three times the odds to remain continuously Troubled than students with higher levels of extraversion, and students with higher GPAs have more than twice the odds than students with lower GPAs to remain continuously Troubled. Given the surprising finding that high GPA predicted worse mental health, the Time 1 GPAs were reviewed. This review of initially troubled students' Time 1 GPAs found a more restricted range among students who remained Troubled (2.29 – 3.85) relative to the greater range of GPAs of students who moved from the Troubled group (0.71 – 4.00).

Table 8
Logistic Regression Analyses of Movement from Time 1 Troubled to Time 2 Troubled as a Function of Demographic, Intrapersonal, and Environmental Predictors Examined in Isolation, N = 61

Predictor	*B*	Standard Error	Wald χ^2 – test	Odds Ratio	*p*
School 2	0.51	0.55	0.86	1.66	.353
Males	-0.30	0.66	0.20	0.74	.652
African American	-0.62	1.04	0.35	0.54	.553
Hispanic	0.62	0.58	1.34	1.86	.286
Multi-Ethnic	0.14	0.76	0.03	1.15	.853
Age	-0.40	0.29	1.93	0.67	.164
SES	-0.41	0.36	1.30	0.67	.254
Academic Self-Perceptions	0.07	0.20	0.11	1.07	.743
Self-Esteem	-0.02	0.05	0.18	0.98	.676
Agreeableness	-0.40	0.47	0.73	0.67	.394
Conscientiousness	-0.26	0.46	0.32	0.77	.573
Neuroticism	2.38	0.66	12.85	10.82	<.001**
Extraversion	-0.95	0.37	6.66	0.39	.010*
Openness	-0.40	0.44	0.81	0.67	.370
Attitudes toward School	-0.02	0.17	0.02	0.98	.898
GPA	0.97	0.46	4.39	2.64	.036*
Relations with Parents	-0.05	0.05	1.01	0.95	.314
(Negative) Attitude to Teachers	0.05	0.06	0.65	1.05	.420
Classmate Support	-0.15	0.29	0.27	0.86	.604
Stressful Life Events	0.02	0.09	0.05	1.02	.828

Note. Higher odds ratios reflect a greater likelihood of being Troubled as scores on the specified variable increase, whereas odds ratio values less than one indicate a lower score on the variable is predictive of membership in the Continuously Troubled group.
*$p < .05$, **$p < .001$.

Movement from partial groups (research question 4). To determine what factors predict which students who begin in a partial mental health group (i.e., Symptomatic but Content or Vulnerable) move to Complete Mental Health or move to Troubled, ordinal logistic regression analysis were performed. The first ordinal logistic regression focuses on whether students moved from a partial mental health group to Time 2 Complete

Mental Health. The second ordinal logistic regression will focus on whether students moved from a partial mental health group to Time 2 Troubled. Only students who were in either the Symptomatic but Content (n = 47) or the Vulnerable (n = 47) groups at Time 1 were included in these analyses.

The outcome of the first ordinal logistic regression was whether students from the Time 1 Vulnerable or Symptomatic but Content groups moved to the Time 2 Complete Mental Health group (n = 43) or moved to any of the other groups or remained in the same group (n = 51). The model's independent variables were the previously specified demographic, intrapersonal, and environmental predictors. One change in predictor variables involved the race/ethnicity groups examined; specifically, since the "Asian" and "Other" ethnicity categories each had only one participant in the Troubled group at Time 1, these two variables were removed from the logistic regression analyses to avoid separation of data points.

The full model containing all predictors was statistically significant, χ^2 (20, N = 94) = 45.53, p =.001, indicating that the model is able to differentiate between participants who moved to the Complete Mental Health group from those who do not. The model had an overall success rate of 58.5% and correctly predicted 51.2% of students who moved to Complete Mental Health and 64.7% of students who did not. Table 9 presents the statistical significance and unique contribution of each independent variable in the model. Only neuroticism (p = .001) emerged as a statistically significant predictor; students with lower levels of neuroticism had 10 times the odds to move to the Complete Mental Health group than students with higher levels.

Table 9

Logistic Regression Analysis of Movement from Time 1 Vulnerable or Symptomatic but Content to Time 2 Complete Mental Health as a Function of Demographic, Intrapersonal, and Environmental Predictors Examined Simultaneously, N = 94

Predictor	*B*	Standard Error	Wald χ^2 - test	Odds Ratio	*p*
School 2	-0.02	0.69	0.00	0.98	.973
Male	-0.77	0.69	1.24	0.46	.266
African American	1.57	1.33	1.40	4.82	.238
Hispanic	0.24	0.67	0.12	1.27	.728
Multi-Ethnic	0.61	1.17	0.27	1.85	.600
Age	0.01	0.30	0.00	1.01	.975
SES	0.29	0.48	0.37	1.34	.543
Academic Self-Perceptions	-0.62	0.43	2.13	0.54	.145
Self-Esteem	0.06	0.09	0.52	1.07	.469
Agreeableness	1.06	0.64	2.75	2.88	.098
Conscientiousness	0.16	0.59	0.08	1.18	.779
Neuroticism	-2.29	0.66	11.88	0.10	.001*
Extraversion	-0.65	0.51	1.66	0.52	.198
Openness	0.94	0.72	1.72	2.56	.190
Attitudes toward School	0.02	0.23	0.01	1.02	.917
GPA	0.11	0.46	0.06	1.12	.804
Relations with Parents	-0.03	0.05	0.34	0.97	.539
(Negative) Attitude to Teachers	0.11	0.08	1.74	1.11	.187
Classmate Support	0.64	0.41	2.51	1.91	.113
Stressful Life Events	-0.05	0.13	0.14	0.95	.707

Note. Higher odds ratios reflect a greater likelihood of becoming Complete Mental Health at Time 2 as scores on the specified variable increase, whereas odds ratio values less than one indicate a lower score on the variable is predictive of membership in the Time 2 Complete Mental Health group.

*$p < .05$, **$p < .001$.

To determine the influence of each predictor without keeping the others constant, logistic regression analysis was again used. A total of 20 different models, each with one predictor to account for all 20 predictors, were analyzed. Table 10 presents these findings. Four models of the 20 utilizing only one predictor were found statistically significant: Male, χ^2 (1, N = 94) = 3.91, p = .048; Self-Esteem, χ^2 (1, N = 94) = 6.09, p = .014; Agreeableness, χ^2 (1, N = 94) = 3.99, p = .046; and Neuroticism, χ^2 (1, N = 94) =

17.33, $p < .001$. Male students have about half the odds as female students to become Complete Mental Health, students with higher levels of self-esteem have 1.14 times the odds to become Complete Mental Health than students with lower levels, students with higher levels of agreeableness have twice the odds to become Complete Mental Health than those with lower levels, and students with lower levels of neuroticism have six times the odds to become Complete Mental Health than those with higher levels.

Table 10
Logistic Regression Analysis of Movement from Time 1 Vulnerable or Symptomatic but Content to Time 2 Complete Mental Health as a Function of Demographic, Intrapersonal, and Environmental Predictors Examined in Isolation, N = 94

Predictor	*B*	Standard Error	Wald χ^2 – test	Odds Ratio	*p*
School 2	-0.50	0.30	1.42	0.61	.235
Male	-0.84	0.42	3.91	0.43	.048*
African American	0.25	0.94	0.07	1.28	.792
Hispanic	-0.36	0.43	0.72	0.69	.395
Multi-Ethnic	0.37	0.76	0.24	1.45	.626
Age	0.17	0.20	0.76	1.19	.383
SES	0.02	0.27	0.00	1.02	.949
Academic Self-Perceptions	-0.18	0.22	0.66	0.83	.417
Self-Esteem	0.13	0.05	6.09	1.14	.014*
Agreeableness	0.74	0.37	3.99	2.09	.046*
Conscientiousness	0.48	0.34	1.96	1.62	.162
Neuroticism	-1.83	0.44	17.33	0.16	<.001**
Extraversion	0.34	0.26	1.68	1.40	.195
Openness	0.47	0.33	2.11	1.61	.146
Attitudes toward School	-0.02	0.14	0.02	0.98	.896
GPA	-0.10	0.31	0.11	0.90	.742
Relations with Parents	0.04	0.03	1.49	1.04	.223
(Negative) Attitude to Teachers	0.02	0.04	0.18	1.02	.675
Classmate Support	0.29	0.21	1.92	1.33	.166
Stressful Life Events	-0.10	0.07	1.80	0.91	.180

Note. Higher odds ratios reflect a greater likelihood of becoming Complete Mental Health at Time 2 as scores on the specified variable increase, whereas odds ratio values less than one indicate a lower score on the variable is predictive of membership in the Time 2 Complete Mental Health group.
*$p < .05$, **$p<.001$.

The outcome of the second ordinal logistic regression was whether students from the Time 1 Vulnerable or Symptomatic but Content groups moved to the Time 2 Troubled group (N = 16) or moved to any of the other groups or remained in the same group (N = 78). The model's independent variables were the previously specified demographic, intrapersonal, and environmental predictors. Given that only one student reported Other an as their ethnicity, and only two students in this analysis identified as Asian, these two variables were removed from the logistic regression analyses to avoid separation of data points. The full model containing all predictors was statistically significant, χ^2 (20, N = 94) = 66.02, p < .001, indicating that the model is able to differentiate between participants who moved to the Troubled group from those who did not. The model had an overall success rate of 77.7% and correctly predicted 50.0% of students who moved to Troubled and 83.3% of students who did not. Table 11 presents the statistical significance and unique contribution of each independent variable in the model. Though the full model containing all of the predictors was statistically significant, none of the model's variables emerged as a statistically significant predictor, which is likely due to a lack of power.

Table 11

Logistic Regression Analysis of Movement from Time 1 Vulnerable or Symptomatic but Content to Time 2 Troubled as a Function of Demographic, Intrapersonal, and Environmental Predictors Examined Simultaneously, N = 94

Predictor	*B*	Standard Error	Wald χ^2 – test	Odds Ratio	*p*
School 2	55.08	48.73	1.28	>1000.00[a]	.258
Males	18.93	15.73	1.45	>1000.00[a]	.229
African American	-141.60	117.90	1.44	<0.01[a]	.230
Hispanic	-64.16	55.96	1.31	<0.01[a]	.252
Multi-Ethnic	-101.80	87.64	1.35	<0.01[a]	.245
Age	2.06	3.57	0.33	7.88	.564
SES	23.17	20.72	1.25	>1000.00[a]	.263
Academic Self-Perceptions	-35.76	30.54	1.37	<0.01[a]	.242
Self-Esteem	-6.82	5.91	1.33	0.01	.249
Agreeableness	-46.33	41.10	1.27	<0.01[a]	.260
Conscientiousness	-34.15	28.93	1.39	<0.01[a]	.238
Neuroticism	34.34	27.76	1.53	>1000.00[a]	.216
Extraversion	-18.12	16.76	1.17	<0.01[a]	.280
Openness	42.44	39.05	1.18	>1000.00[a]	.277
Attitudes toward School	45.88	38.75	1.40	>1000.00[a]	.236
GPA	-0.35	2.39	0.02	0.70	.882
Relations with Parents	0.33	0.42	0.62	1.40	.431
(Negative) Attitude to Teachers	-4.63	3.81	1.48	0.01	.224
Classmate Support	-16.52	13.74	1.45	<0.01[a]	.229
Stressful Life Events	1.96	1.70	1.34	7.10	.248

Note. Higher odds ratios reflect a greater likelihood of becoming Time 2 Troubled as scores on the specified variable increase, whereas odds ratio values less than one indicate a lower score on the variable is predictive of membership in the Time 2 Troubled group.
[a]Though large or small in magnitude, this odds ratio is not statistically significant.
*$p < .05$, **$p < .001$.

To determine the influence of each predictor without keeping the others constant, logistic regression analysis was again used. A total of 20 different models, each with one predictor to account for all 20 predictors, were analyzed. Table 12 presents these findings. Three models of the 20 utilizing only one predictor were found statistically significant: Self-Esteem, χ^2 (1, $N = 94$) = 9.41, $p = .002$; Neuroticism, χ^2 (1, $N = 94$) = 13.82, $p < .001$; and Extraversion, χ^2 (1, $N = 94$) = 4.45, $p = .035$. Specifically, students

with higher self-esteem were .80 times the odds of becoming Troubled than students with lower levels, students with higher levels of neuroticism had nearly eight times the odds of becoming Troubled than students with lower levels, and students with higher levels of extraversion or higher levels of classmate support had about half the odds of becoming Troubled as students with lower levels of extraversion.

Table 12
Logistic Regression Analysis of Movement from Time 1 Vulnerable or Symptomatic but Content to Time 2 Troubled as a Function of Demographic, Intrapersonal, and Environmental Predictors Examined in Isolation, N = 94

Predictor	*B*	Standard Error	Wald χ^2 – test	Odds Ratio	*p*
School 2	0.15	0.55	0.07	1.16	.788
Males	1.05	0.62	2.85	0.85	.091
African American	-0.21	1.15	0.03	0.81	.856
Hispanic	0.68	0.62	1.20	1.98	.273
Multi-Ethnic	-1.21	0.79	2.36	0.30	.124
Age	-0.43	0.29	2.22	0.65	.136
SES	0.48	0.37	1.73	1.62	.189
Academic Self-Perceptions	-0.02	0.29	0.00	0.98	.941
Self-Esteem	-0.21	0.07	9.41	0.81	.002*
Agreeableness	-0.69	0.48	2.06	0.50	.152
Conscientiousness	-0.42	0.44	0.89	0.66	.346
Neuroticism	2.04	0.55	13.82	7.70	<.001**
Extraversion	-0.74	0.35	4.45	0.48	.035*
Openness	-0.10	0.42	0.06	0.90	.801
Attitudes toward School	0.25	0.21	1.43	1.29	.231
GPA	-0.02	0.41	0.00	0.98	.953
Relations with Parents	0.00	0.04	0.04	0.99	.843
(Negative) Attitude to Teachers	0.02	0.06	0.10	1.01	.741
Classmate Support	-0.54	0.28	3.70	0.58	.054
Stressful Life Events	0.03	0.09	0.08	1.03	.773

Note. Higher odds ratios reflect a greater likelihood of becoming Time 2 Troubled as scores on the specified variable increase, whereas odds ratio values less than one indicate a lower score on the variable is predictive of membership in the Time 2 Troubled group.
*$p < .05$, **$p < .001$.

Chapter 5*:* Discussion

This longitudinal study examined the one-year stability of adolescent mental health as classified using a dual-factor model of mental health, and identified predictors of stability and change. Specifically, this study investigated the demographic, intrapersonal, and environmental factors that predict which students consistently have Complete Mental Health (i.e., high SWB and low psychopathology) or are consistency Troubled (i.e., low SWB and high psychopathology). Additionally, the factors that predict movement of students with initial partial mental health (i.e., Vulnerable or Symptomatic but Content status) to either Complete Mental Health or to Troubled status were evaluated. The following discussion expands on this study's findings and integrates them in the context of the relevant literature. Next, the study's contributions to the literature and implications of the findings for practice are detailed. Last, the study's limitations are presented along with recommendations for future research intended to address the identified limitations.

Stability of Adolescents' Mental Health Classification in a Dual-Factor Model

Although psychology has traditionally defined "mental wellness" as the absence of psychopathology (Maddux, 2005), a growing body of research indicates that an absence of psychopathology does not equate with complete mental health, and that wellness and psychopathology are not on opposite poles of the same continuum (Keyes, 2006). Emerging research has proposed integrating indicators of psychopathology (i.e., internalizing and externalizing problems) and subjective well-being (i.e., life satisfaction,

positive and negative affect) into one model of mental health, termed a dual-factor model of mental health. In brief, the four quadrants of mental health classifications that emerge using dichotomized levels of psychopathology (clinically-elevated vs. typical range) in combination with levels of subjective well-being (low vs. average to high) include the two traditional groups of mental health, Complete Mental Health (no to subclinical psychopathology, average to high subjective well-being), and Troubled (clinically-elevated psychopathology, low subjective well-being), as well as two unique, and often overlooked, groups: Symptomatic but Content (clinically-elevated psychopathology co-existing with average to high subjective well-being), and Vulnerable (no to subclinical psychopathology, but low subjective well-being). Greenspoon and Saklofske (2001) first investigated the presence and utility of a dual-factor model of mental health in elementary school children, and those four distinct groups emerged as predicted. Such cross-sectional research has been replicated and extended to students in middle school (Antaramian, Huebner, Hills, & Valois, 2010; Suldo & Shaffer, 2008), high school (Suldo, Thalji, Frey, McMahan, Chappel, & Fefer, 2011), and college (Eklund, Dowdy, Jones, & Furlong, 2011).

The stability of group membership in a dual-factor model of mental health has been investigated in one previous study, albeit with middle school students (Kelly, Hills, Huebner, & McQuillin, 2012). When comparing the findings of Kelly and colleagues to those of the current study, several similarities emerge. The majority of students in both studies remained in the same group over time, with 69% of middle school and 61% of high school students maintaining their group status across two time points (separated by five months and a year, respectively). Previous examinations of life satisfaction or

psychopathology in isolation also support the moderate stability of these constructs in adolescents over time (Antarmian & Huebner, 2009; Lewis, Huebner, Malone, & Valois, 2011; Reitz, Dekovic, & Meijer, 2005). In both the current study and Kelly et al. (2012), the Complete Mental Health group demonstrated the most stability, followed by the Troubled group. Thus, the two traditional mental health classifications were more stable than the partial mental health groups (i.e., Symptomatic but Content and Vulnerable).

The studies' findings differed in terms of the least stable group. With middle school students, the Vulnerable group (as defined at Time 1) was the least stable group (with 29% of students maintaining Vulnerable group status one year later; this profile applied to 30% of initially Vulnerable students in the current study of high school students) while the initial Symptomatic but Content group was least stable in high school students (with 17% maintaining their Symptomatic but Content group status one year later, in comparison to 42% of middle school students showing this profile). Thus, while the Vulnerable groups evidenced similar levels of stability in middle and high school students, Symptomatic but Content high school students were much more likely to experience changes in their mental health status. Differences in study methodologies may contribute to this discrepancy in findings. Whereas the middle school students in Kelly et al. (2012) self-reported their externalizing behaviors, in the current study of high school students, different teachers rated students' externalizing behaviors at the two time points, and Symptomatic but Content students are distinguished by relatively high rates of externalizing psychopathology, particularly ADHD symptoms (Thalji, 2012). Differences in teacher perceptions of a given student may in part account for the lack of stability in the Symptomatic but Content group. In any event, both studies suggest a trend toward

Complete Mental Health; in both samples, students who were Vulnerable or Symptomatic but Content at Time 1 were more likely to move to the Complete Mental Health group than to remain in their group or to move to another group with either high psychopathology or low subjective well-being. That said, a sizable proportion of students in these partial mental health groups experienced changes in both their SWB and psychopathology. Specifically, about 11% of high school students initially Vulnerable became Symptomatic but Content (14% for middle school students), and 17% of initially Symptomatic but Content became Vulnerable (7% for middle school students). Taken together, findings of the current study suggest appearing Vulnerable or Symptomatic but Content may be a rather transient phenomenon.

Students originally in the Troubled group were more likely to remain Troubled than to move to any other one group in both studies, underscoring the chronic nature of mental health problems in tandem with diminished subjective well-being, which perhaps indicates high SWB as a marker of a better prognosis among clinically symptomatic adolescents. Specifically, 47% of high school students with both high SWB and high psychopathology (Symptomatic but Content) at Time 1 evidenced Complete Mental Health at Time 2, while only 25% of high school students also with high psychopathology but with low levels of SWB (Troubled) had Complete Mental Health at Time 2. Similarly, 43% of middle school students Symptomatic but Content at Time 1 became Complete Mental Health at Time 2, compared to only 18% initially Troubled of middle school students who evidenced Complete Mental Health at Time 2.

Predictors of Adolescent Mental Health

The existing literature base on predictors of psychopathology and indicators of SWB suggests that many demographic, intrapersonal, and environmental factors play a role in later mental health. Only one study has examined predictors of future mental health status as determined according to the dual-factor model (i.e., considering students' SWB and psychopathology simultaneously; Kelly et al., 2012), though with middle school students, and examining only social support from different sources as predictors. The findings of Kelly and colleagues will be compared with those of the current study.

Predictors of continuous Complete Mental Health. In the current study, students' socioeconomic status (SES), ethnicity, academic self-perceptions, personality characteristics (agreeableness, neuroticism, and extraversion), academic achievement (grade point average), parent-child relations, and student-teacher relations all significantly predicted whether students with Complete Mental Health remained this way over time or experienced categorical deteriorations in either SWB or psychopathology. When the commonality amongst these variables was controlled for, SES and neuroticism still emerged as unique predictors, suggesting their influence may be particularly salient.

Regarding the demographic predictors, adolescents with higher SES and who identified as African American were more likely to remain in the Complete Mental Health quadrant over time, while their classmates with lower SES and/or who were from other ethnic groups were more likely to move to a less-optimal mental health group the following year. Previous research has documented the relationship between higher SES and better mental health in terms of lower levels of internalizing and externalizing problems and higher life satisfaction (Curtis, Waters, & Brindis, 2011; Gilman & Huebner, 2003). In one longitudinal study, male adolescents with low psychopathology

growing up in low income homes were more likely than male adolescents with similarly low psychopathology but who grew up in wealthier homes to experience increases in psychopathology at age 24 (Lynam, Loeber, & Stouthamer-Loeber, 2008). However, findings for ethnicity have been mixed. The type of diagnosis (i.e., internalizing or externalizing) an adolescent may receive has been linked to ethnicity such that African American youth are more likely than Caucasian or Hispanic students to be diagnosed with an externalizing disorder but less likely than these other two groups to be diagnosed with an internalizing disorder (Minsky, Petti, Gara, Vega, Lu, & Kiely, 2006). In a separate study, Angold and colleagues (2002) determined that Caucasian students have higher prevalence rates of depressive disorders and affective/anxiety disorders than African American youth, while Broman (2012) found the most depressive symptoms in Latino young adults followed by African American young adults and Caucasian young adults, respectively. No previous relationship between ethnicity and subjective well-being has been found (Gilman & Huebner, 2003; Lent, 2004). Thus, the current study's finding that African American adolescents were most likely to retain their Complete Mental Health status across a one-year period represents a unique contribution to the literature. The current study also ruled out some demographic characteristics (i.e., gender, age) as related to which students are most likely to retain their Complete Mental Health status.

In terms of intrapersonal characteristics, more positive academic self-perceptions, higher levels of agreeableness, and extraversion, and lower levels of neuroticism predicted the most optimal mental health from year to year. These findings about adaptive and maladaptive personality factors align well with previous research. Higher

levels of neuroticism predict worsening symptoms of depression in people diagnosed with dysthymic disorder before age 21 (Hayden & Klein, 2001), and low levels of extraversion in early childhood predict young adult anxiety and depression (Bohlin & Hagekull, 2009). Neuroticism in adolescents co-occurs with higher levels of internalizing problems and lower SWB, whereas greater extraversion co-occurs with the opposite (Garcia, 2011). In one study with adults, higher levels of extraversion predicted higher levels of SWB approximately two years later in adults (Lu, 1999). Extraversion, and another adaptive dimension of personality, agreeableness, have both been shown to uniquely relate to positive mental health relative to other personality traits (Lamers, Westergof, Kovacs, & Bohlmeijer, 2012). The current study advances these additional dimensions of personality as tied to continually optimal mental health. Negative self-perceptions have emerged as a risk factor for future increases in depressive symptoms in previous research with young adults (McGrath, Sherry, Stewart, Mushquash, Allen, Nealis, et al., 2012), while positive self-perceptions co-occur with higher SWB (Huebner, Funk, & Gilman, 2000). Though students' perceptions of their academic functioning was a significant predictor of continuous Complete Mental Health, a related construct, self-esteem, was not. When controlling for the influence of all other variables, however, neuroticism is the only one that continues to be a reliable and unique predictor, suggesting that a high level of neuroticism is a particularly important intrapersonal risk factor for ceasing to have complete mental health.

More positive relations with parents and teachers, as well as greater success at school (i.e., higher academic achievement in terms of GPA), emerged as environmental predictors of maintaining Complete Mental Health across two consecutive time points

during high school. The finding that adolescents who reported more positive relationships with their parents were more likely to continue experiencing optimal mental health is similar to what Kelly and colleagues (2012) found with middle school students, in which family support for learning significantly predicted which middle school students experienced continuous Complete Mental Health. Other research with adolescents supports this link, such as that by Hammen (2009) and Hammen and colleagues (2008), who found that interpersonal stress in one's family relations co-occurs with depression in adolescents. However, Hammen (2009) and Hammen and colleagues (2008) also found interpersonal stress in adolescents' social lives and friendships were relevant, which was not the case with the current study as relationships with peers did not emerge as significant predictors of which students who initially had Complete Mental Health stayed that way. Other studies of adolescents' subjective well-being also identified parent support as particularly crucial, at least as a cross-sectional correlate of life satisfaction (Suldo & Huebner, 2004). With respect to school-related factors, other studies also found positive relationships with teachers and better grades predicted fewer externalizing problems (Liljeberg, Eklund, Fritz, & Klinteberg, 2011) and greater subjective well-being (Suldo, Huebner, Savage, & Thalji, 2011). Though these school-related factors were significant predictors of continuous optimal mental health, students' overall attitudes toward school were not a significant predictor in this current study.

In sum, students with Complete Mental Health from higher SES backgrounds with low levels of neuroticism are most likely to maintain that optimal mental health over time, whereas Complete Mental Health students with low SES and high levels of neuroticism may be at risk for experiencing future deteriorations in their mental health.

Greater levels of academic self-perceptions, adaptive personality characteristics (agreeableness and extraversion), academic achievement, positive relations with teachers and parents, and an African-American ethnicity are also predictive of continually optimal mental health.

Predictors of continuous Troubled status. Troubled youth, or those with clinical levels of psychopathology with low levels of SWB, experience the worst outcomes in terms of behavioral, academic, and social functioning (Greenspoon and Saklofske, 2001; Suldo & Shaffer, 2008). Understanding what predicts which students exhibit Troubled status across time could help guide efforts to prevent students from continually experiencing the poorest mental health and, as a result, the poorest outcomes.

In the current study, personality characteristics (neuroticism and extraversion) and academic achievement (grade point average) significantly predicted whether students with initially Troubled mental health remained this way over time or experienced a categorical improvement in SWB and/or psychopathology. Specifically, students with high neuroticism, low extraversion, and high GPA were more likely to be continuously Troubled than those with opposite profiles. When the commonality amongst these variables was controlled for, none of these factors continued to be significant, unique predictors.

The finding that high neuroticism and low extraversion are risk factors for poor mental health is supported by previous research (Bohlin & Hagekull, 2009; Hayden & Klein, 2001). Neuroticism and extraversion, like the other three dimensions of personality, are conceptualized as broad domains encompassing many traits (Goldberg, 1993). Traits associated with neuroticism include nervousness, moodiness, and

tempermentality, while extraversion is associated with traits such as talkativeness, assertiveness, and activity. Neuroticism is closely linked to negative affect, thus indicating some conceptual redundancy with (low) subjective well-being (Weinstock & Whisman, 2006). When individuals with high levels of neuroticism encounter a problem, they are likely to experience distressing emotions and to rely on emotion-focused coping, such as distancing themselves or avoiding the problem, rather than engaging in more effective problem-solving behaviors (Bouchard, 2003), which may partially explain why students with high neuroticism are susceptible to remaining entrenched in mental health problems. Alternatively, extraversion is associated with positive affect (Lucas & Baird, 2004) even in the face of stress (Schneider, Rench, Lyons, & Riffle, 2011). Extraverted individuals tend to feel more efficacious in their struggles and have more positive and optimistic views of their past achievements, current progress, and future success compared to introverts (Romero, Villar, Luengo, & Gomez-Fraguela, 2009). Such tendencies likely protect extraverts from remaining continuously Troubled, in line with the high positive affect feature that is conceptually in line with experiencing greater subjective well-being,

High grade point average as a risk factor, however, is surprising. In their longitudinal study with high school students, Hishinuma and colleagues (2012) determined that depressive symptoms negatively affected future academic achievement and not the other way around. The research of Accordino, Accordino, and Slaney (2000) suggests that high grades could be a risk factor for depression if the high grades still fall beneath students' personal standards since, in their study, adolescents' depressive symptoms increased when they perceived a discrepancy between their personal academic

standards and actual performance. This hypothesis cannot be tested out in the current database because students' perfectionism was not measured. In the absence of guiding literature, this researcher speculates that perhaps students with higher grades are more aware of their poor mental health and the potential harmful effects of mental health problems on their functioning than those with poorer grades. Alternatively, students with high achievement possibly experience greater pressure to maintain those good grades (for instance, parent pressure to excel or high expectations for achievement from themselves or others), which may contribute to greater levels of perceived stress, which may maintain mental health problems. Finally, a review of the Time 1 GPAs of initially Troubled students found a rather restricted range among students who remained Troubled (GPAs: 2.29 – 3.85) relative to the greater range of GPAs of students who moved from the Troubled group (GPAs: 0.71 – 4.00). It is thus plausible that some of the Troubled students with lower GPAs at Time 1 who had greater room for academic gains may have actually experienced some improvements, which would co-occur with improved mental health.

Environmental factors, such as positive relationships with parents, peers, and teachers, and frequent experiences of negative (stressful) life events, did not predict which students remained Troubled at both time points in high school, which is inconsistent with previous research. Surprisingly, in prior research with middle school students, family emerged as a risk factor for continuously Troubled status; Troubled students with high levels of family support for learning were three times more likely to remain Troubled over time (Kelly et al., 2012). Researchers in that study speculated that family support for learning alone might be insufficient as a protective factor. If high

family support for learning co-occurs with high family expectations to succeed, then this finding could strengthen the aforementioned hypothesis that pressure to excel academically might serve as a risk factor for maintenance of poor mental health. On the contrary, in a 15-month longitudinal study with adolescents with sub-threshold levels of depression, Yang and colleagues (2010) found social support from peers buffered adolescents from experiencing greater increases in depressive symptoms following negative events, yet adolescents' reports of their peer relationships did not significantly predict which ones stayed Troubled over time in the current study. It could be that the vast majority of students who were classified as Troubled at Time 1 also had impaired social relationships, thus precluding any sort of buffering effects given an absence of positive relationships in the subgroup. Previous longitudinal research with adolescents found that the occurrence of stressful life events significantly predicted the stability of anxiety disorders (Eassu, Conradt, & Petermann, 2002), though, again, this factor did not emerge as a significant predictor in the current study. It may be that the participants' retrospective account of the stressful life events they experienced in the six months prior to Time 1 was too distal a possible predictor of their mental health at Time 2, as students would have had considerable time to adjust to the stressful experiences they incurred 12 – 18 months prior to reporting their mental health at Time 2.

In sum, personality factors were more predictive of continuous poor mental health than were environmental or demographic factors in the current study. Specifically, high neuroticism and high GPA served as risk factors for students' retaining a Troubled mental health status, whereas extraversion was protective in that initially Troubled

students who were more extraverted were more likely to improve their mental health status.

Predictors of movement from partial mental health groups. The current study examined whether students with incomplete or partial mental health (i.e., initially either Symptomatic but Content or Vulnerable) experienced categorical improvements in either SWB or psychopathology over time (to become Complete Mental Health) or experienced a categorical deterioration in either SWB or psychopathology over time (to become Troubled). Gender, self-esteem, and personality characteristics (neuroticism, agreeableness) all significantly predicted whether or not students with partial mental health achieved optimal mental health. When the commonality amongst these variables was controlled for, only neuroticism still emerged as a unique predictor. When considering the factors that predicted whether students with incomplete health worsened over time, self-esteem, neuroticism, and extraversion were all significant predictors, though their impact was no longer unique and significant after accounting for the commonality amongst these variables.

Regarding gender, females were more likely than males to move from partial to Complete Mental Health. This finding aligns with past longitudinal research in which female adolescents' psychopathology, specifically, internalizing problems, tended to stabilize in early adulthood compared to males' which stabilized later in adolescence (Overbeek, Vollebergh, Meeus, Engels, & Ljijpers, 2001). Other longitudinal research with adolescents documented that, though female adolescents are more likely than male adolescents to experience depression, they are also more likely than their male peers to

seek help (Sen, 2004), and therefore could be more likely to see improvements in terms of psychopathology symptoms.

High self-esteem, low neuroticism, and high agreeableness were the intrapersonal predictors of students' movement from partial to optimal mental health. Conversely, low self-esteem, high neuroticism and low extraversion (but not agreeableness) predicted students' movement from partial to worse mental health. Regarding the role of self-esteem, the finding that high self-esteem in students with partial mental health protected them from experiencing further deteriorations in mental health is supported by previous research where high self-esteem in other research acted as a buffer against the negative effects of stress (Stupnisky, Perry, Renaud, & Hladkyj, 2012). Low self-esteem, on the other hand, in adolescents has been shown in longitudinal research to predict higher levels of depression at age 21 (Orth, Robins, & Roberts, 2008). Students with high self-esteem may be able to identify other aspects of their lives that are going well aside from their low well-being or psychopathology, such as their social lives, that enable them to experience improvements in their functioning.

In a relevant study of adults experiencing sub-threshold depressive and anxiety symptoms, researchers concluded that personality characteristics, such as neuroticism, agreeableness, and extraversion, did not influence participants' response to treatment (Farnam, Farhang, Bakhshipour, & Niknam, 2011), suggesting that, once a person has mental health problems, personality factors may have less of an impact on improvements in mental health. Findings from the current study (in which treatment was not provided) suggests that mental health may be more malleable in youth, and more influenced by specific personality tendencies. The aspects of high neuroticism and low extraversion that

place one at risk for mental health problems have been previously discussed. Regarding agreeableness, longitudinal research has shown that children with agreeable and extraverted personalities become more competent and resilient adults (Shiner & Masten, 2012). An agreeable personality is one that is kind, trustworthy, and warm (Goldberg, 1993). Agreeable students are more likely to engage in sharing and helping behaviors, take care of others' needs, and emphasize with others' feelings (Capara, Alessandri, & Eisenberg, 2012), and these positive social interactions may protect them from deteriorations to their mental health. Of note, cross-sectional research with young adults has looked at the ways both self-esteem and personality relate to life satisfaction and found self-esteem mediated the influence of conscientiousness, agreeableness, extraversion, and neuroticism on life satisfaction (Joshanloo & Afshari, 2011). In the present study with high school students, neuroticism evidenced a direct effect while self-esteem did not emerge as a unique predictor. Thus, the salience of neuroticism as a predictor of subsequent mental health is different from previous research, and underscores the mental health risks associated personality tendencies towards nervousness, moodiness, and tempermentality.

Contributions to the Literature

This study expands upon the emerging support for a dual-factor model of mental health in youth. Specifically, this study supports previous validations of a dual-factor model in youth, is only the second to investigate the model's stability over time, and provides the first comprehensive examination of predictors of stability and change with regard to high school students' mental health status. With respect to uncovering support for existence of a dual-factor model of mental health, the cell sizes of the two partial

groups (Symptomatic but Content and Vulnerable) are sizable and comparable to those obtained in earlier, cross-sectional research (Greenspoon & Saklofske, 2001; Suldo & Shaffer, 2008).

Regarding stability, findings from the current study indicate that the majority of students (60%) remain in the same mental health group across two time points separated by one year. The two traditional groups of mental health status, Complete Mental Health (average to high SWB with low psychopathology) and Troubled (low SWB with high psychopathology) evidenced more stability than the partial mental health groups (Symptomatic but Content and Vulnerable). The tandem of low SWB along with high psychopathology was much more likely to predict continued poor mental health than when students were initially at-risk on only one factor of mental health. Only 25% of initially Troubled students moved to the Complete Mental Health group (i.e., evidenced increased SWB and diminished psychopathology) compared to 45% of students initially in the Vulnerable group and 47% initially in the Symptomatic but Content group, demonstrating there is greater movement from the partial mental health groups than the Troubled group.

Regarding predictors of later mental health status, the current study identified high neuroticism and low SES (defined as low family income and less parental education attainment) as particularly relevant to declines in mental health status one year later, while low neuroticism emerged as a predictor of improvements in mental health. High family SES was also particularly relevant for maintaining Complete Mental Health across time. Other factors, including gender, race, self-esteem, other dimensions of personality, GPA, and relations with others also predicted future mental health, but were not unique

predictors once the shared variance amongst the factors was considered. The finding that low SES is a risk factor for future mental health has been observed in studies of psychopathology (van Oort, Ende, Wadsworth, Verhulst, & Achenbach, 2011) and SWB (Gilman & Huebner, 2003). The current study confirms the detrimental impact of low SES, as low SES placed students with the most optimal mental health profile at risk for poorer future mental health. Though intrapersonal factors have been implicated in youth's internalizing problems (Graber, 2004), externalizing problems (Farrington, 2004), and SWB (Gilman & Huebner, 2003; Suldo, Huebner, Savage, & Thalji, 2011), the current study highlighted neuroticism as a particularly salient predictor of students' future mental health when defined in accordance with a dual factor model. Neuroticism was more influential than the environmental factors, such as relationships with family and peers and schooling experiences, that have been found so influential on students' internalizing problems (Graber, 2004), externalizing problems (Farrington, 2004) , and SWB (Gilman & Huebner, 2003; Suldo, Huebner, Savage, & Thalji, 2011). However, previous longitudinal studies of adolescents' mental health rarely feature the number of demographic, intrapersonal, and environmental factors included in the current study. Furthermore, the one study which did examine predictors of students' movement in a dual-factor model considered only social support variables (Kelly et al., 2012). While these other environmental factors may be important to students' mental health, a student's level of neuroticism is more predictive. Given that changes in environmental contexts and academic experiences may be more attainable than changes in personality, the protective nature of such factors as support from teachers and parents, and greater

levels of academic self-perceptions and academic achievement, are still noteworthy findings with regard to ensuring continually optimal mental health status.

Implications for School Psychologists

The aforementioned results of this study are useful for school-based mental health professionals' prevention and intervention work. First, understanding that high levels of SWB can co-occur with high psychopathology and that low levels of SWB can co-occur with low psychopathology, and that adolescents' initial levels of each factor are associated with the likelihood they will exhibit complete mental health, partial mental health, or appear troubled the year following, strengthens the rationale for measuring students' SWB in conjunction with their psychopathology. It appears increasingly erroneous to equate an absence of mental health problems with the presence of mental wellness. Instead, full mental health involves both the presence of feelings of happiness (i.e., SWB) along with an absence of symptoms.

Findings from the current study also underscore the importance of regularly monitoring students' mental health, with respect to levels of SWB and psychopathology. Although about 80% of students with Complete Mental Health initially continued to have optimal mental health a year later, the other 20% experienced deteriorations in their SWB and/or psychopathology. Rather than presuming that Complete Mental Health is an end in itself, mental health professionals can take proactive measures to prevent students from experiencing deteriorations. A proactive approach intended to prevent waiting until a student experiences both pathological symptoms and diminished SWB is particularly important given that over a third of students with initial Troubled mental health continued to experience the worst mental health status a year later. Therefore, it may be more

advantageous to focus on identifying students at risk for poor mental health (i.e., low SWB or high psychopathology) before they reach Troubled status. The measure of life satisfaction used in the current study (7-item Students' Life Satisfaction Scale; Huebner, 1991) may be a particularly useful component of a school-wide screening of wellness (see Suldo, Huebner, Savage, & Thalji, 2011 for a review of brief, psychometrically-sound, and free self-report measures of children and adolescents' life satisfaction).

This study provides additional insight into the factors that predict students' stability and movement across mental health groups over time. Such information could be useful for school-based mental health professionals' prevention and intervention work. The personality factor of neuroticism was the most reliable and unique predictor of high school students' future mental health status. High levels of neuroticism placed students at risk for declines in their mental health. School psychologists may consider assessing students' levels of this and other personality traits via recently developed self-report measures such as the Five-Factor Personality Inventory–Children (FFPI-C; McGhee, Ehrler, & Buckhalt, 2007). Caspi and Roberts (2001) deemed that, though there is modest consistency in personality traits from childhood to adulthood, these traits are not fixed, and they are able to change. In their review of literature on the continuity and change of personality factors across a person's life course, they identified the following strategies for promoting positive changes, such as decreasing neuroticism, in personality: using behavioral contingencies to extinguish inhibited behavior and to promote more adaptive behavior, encouraging people to reflect on their own behavior, and observing others' adaptive behavior (Caspi & Roberts, 2001). Nelis and colleagues (2011) found that improving adults' emotional competencies with a brief training led to significant

long-term increases in extraversion and agreeableness and a decrease in neuroticism. Despite indications that personality is not fixed, it should be noted there are presently no empirically validated interventions for decreasing neuroticism in adolescents. Thus, it is likely more effective to proactively support adolescents' average-to-high SWB and low psychopathology rather than waiting until they are Troubled.

The latter suggestion may be achieved via universal and targeted interventions geared towards promoting SWB in all youth. At the universal level, considerations of school climate dimensions that are associated with youth SWB may be crucial to promote. Peer relations and parental involvement are two dimensions of school climate particularly relevant to high school students' life satisfaction (Suldo, McMahan, Chappel, & Loker, 2012). Addressing these dimensions at a universal level, through activities such as cooperative learning strategies (Lehr & Christenson, 2002) and bullying prevention programs (Espelage & Swearer, 2003) for peer relations and encouraging education professionals to include parents in decision-making processes (Esler et al., 2008) for parental involvement, allows practitioners an opportunity to promote students' SWB.

At the targeted level, a budding literature supports the efficacy of happiness-increasing interventions for adults. Applications of developmentally-appropriate downward-extensions of these interventions appear logical. For example, adults who practiced grateful thinking by writing down up to five things they felt thankful for each day for 2 to 3 weeks showed increases in their positive affect and ratings of their lives compared to a control group (Emmons & McCullough, 2003). In a separate study, completion of a gratitude visit, in which one writes and delivers a letter to someone who they wish to thank for something, and writing each day three things that went well that

day for several months led to increases in adults' happiness (Seligman, Steen, Park, & Peterson, 2005). When this study was replicated with high school students, who performed the exercise during class instructional time, they experienced decreases in negative affect is increases in life satisfaction (Froh et al., 2008). Identifying and using one's character strengths is also associated with increases in happiness. Specifically, adults who identified their character strengths and used them in a new way weekly for several weeks experienced greater gains in happiness than adults who identified their character strengths but did not use them in a novel way (Seligman et al., 2005). Performing five acts of kindness (an action that benefits others) one day a week for six weeks increased young adults' SWB more than adults who performed no acts of kindness (Lyubomirsky et al., 2005). Other potential avenues for targeted interventions for enhancing SWB include increasing hope, engaging in goal setting, and promoting problem solving skills (Suldo, Huebner, Savage, & Thalji, 2011).

Besides neuroticism, the current study identified SES as a risk factor for loss of complete mental health. Practitioners should be cognizant of this risk factor in their work and understand that students from low SES families who initially present with optimal mental health may be at risk for experiencing future poorer mental health. These students may have reduced access to resources to sustain complete mental health or to buffer them from future diminished mental health in the face of family stressors that pose risk.

Other factors that emerged as particularly predictive of changes in mental health that practitioners should be on the lookout for during their clinical assessments of school-wide monitoring of risk factors include low agreeableness, low extraversion, poor relations with parents, and poor relations with teachers. Each of these factors significantly

predicted students' loss of complete mental health. It might be beneficial for practitioners to focus their prevention and intervention efforts on the relational factors that may be more accessible and malleable relative to personality traits. Regarding promoting teacher-student relations, focus groups with adolescents identified several specific teacher behaviors convey support: attempting to connect with students on an emotional level, using diverse and best practice strategies, acknowledging students' academic success, demonstrating fairness, and encouraging student questions (Suldo, Friedrich, White, Farmer, Minch, & Michalowski, 2009). Sharing these insights with school professionals can be useful when targeting student-teacher relations. Similarly, school psychologists desiring to promote positive parent-adolescent relations could share the following techniques (which have been shown to improve parent-child relationships) with parents: reframe their child's behavior and needs, moderate their emotional responses to problem behavior, and utilize parenting strategies to support their child while clearly setting and maintaining limits and expectations (Obsuth, Moretti, Holland, Braber, & Cross, 2006).

Limitations

When considering the results of the current study, it is important to note a few limitations. First, this study used convenience sampling, and it is possible that students who agreed to participate in the study may be different from students who did not choose to participate in unknown ways. Furthermore, since this study was conducted with only high school students in the southeast, it would be erroneous to assume that the findings apply to populations outside of this geographic area or developmental level.

Other limitations pertain to the study's measures and design. Since students' externalizing problems were rated by a different teacher at each time point, it is possible

that changes in their psychopathology reflected differing perceptions on the part of the rater rather than changes in adolescents' behavior. When the interrater reliability of the BASC-TRS was tested by having 58 adolescents rated by two different teachers, with an interval of 0 to 62 days, the median reliability estimate was .53 (Reynolds & Kamphaus, 2004), suggesting that there may be inconsistencies in ratings of adolescents' externalizing problems across teacher raters. Furthermore, students' mental health was measured by only two time points separated by one year, which does not provide insight into the different types of mental health trajectories students may have experienced between those two time points. For example, longitudinal research with adolescents has identified six different trajectories of depressive symptoms: stable over time with low levels, stable over time with medium levels, stable over time with high levels, episodic (levels go up and down over time), decreasers (levels decrease over time), and increasers (levels increase over time; Heath & Camarena, 2002). In that study by Heath and Camarena, 68% of adolescents were in one of the three stable groups. Thus, if more frequent assessment of mental health had occurred in the current study, findings and groupings for mental health change across time may have differed.

Another study limitation was that adolescents' personality was measured at the second time point rather than the first (when the other predictors were measured). Though measures of adolescents' personality traits show consistency over time (Klimstra, Hale, Raaijmakers, Branje, & Meeus, 2009), the current study is unable to determine if personality traits truly predict future mental health or only co-occur with different mental health profiles. Assessing school achievement at a single time point (average of end of semester grades during the first wave of the study) is another limitation, as students' GPA

could fluctuate (and grades earned that one semester may be a fluke). However, previous research suggests that GPA is fairly stable across time, with correlations of .50 and above between student grades in eighth grade and twelfth grade (Quirk, Keith, & Kirk, 2001).

Finally, limited cell size in some mental health groups may have reduced statistical power to detect effects, particularly when examining predictors of movement from the partial mental health groups (i.e., Vulnerable and Symptomatic but Content). A larger sample might yield more robust findings with regard to predictors of movement from these mental health groups.

Summary and Future Directions

The current study represents the first investigation into the stability of the dual-factor model in high school students and is the first to comprehensively consider longitudinal predictors of mental health status stability and change. Results from the current study suggest that, while the majority of high school students maintained their mental health status over time, 40% experienced changes in their mental health profiles. For students in the initial Symptomatic but Content and Vulnerable groups, the trend across time was for them to exhibit Complete Mental Health rather than to move into any one of the three other groups. In contrast, students initially Troubled were more likely to continue experiencing the poorest mental health. Fortunately, half of high school students in this study had Complete Mental Health at both time points.

Of the different demographic, intrapersonal, and environmental factors considered, socioeconomic status and neuroticism emerged as the most reliable and unique predictors of future mental health. Specifically, students with higher family SES and lower levels of neuroticism were most likely to either maintain Complete Mental

Health over time or to move from a different group to the Complete Mental Health group over time; students with the opposite profile were most likely to experience deteriorations in their mental health.

Given that this study is only the first to examine the stability of dual-factor model group membership in high school students, this research needs to be replicated (with larger samples to ensure sufficient power) and extended to more diverse samples to determine if the same trends are observed. Such studies may consider assessing externalizing forms of student psychopathology from a stable source, such as student self-report or parent report. Additionally, measuring personality at the initial time point, rather than at the second, would help determine if personality can predict future dual-factor group membership or if neuroticism simply co-occurs with declines in mental health. Another aspect to consider with regard to measurement in future work involves SES. In the current study, SES was comprised of three different approximations: school lunch status, mother's education, and father's education. Using actual household income, rather than those indicators, in future research might yield different relationships.

Research should be conducted to explore how adolescents' outcomes differ depending on the stability (or lack thereof) of adolescents' group membership in the dual-factor model. For instance, do students with Complete Mental Health over time experience better outcomes than those who experience Complete Mental Health at only one time point? Do students in the Troubled group at both time points experience the worst outcomes? Identifying how group membership over time relates to students outcomes might provide further rationale for continuously monitoring students' mental health, and providing preventative and remedial interventions as indicated.

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Appendix

Appendix A

Recruitment Script for Teachers

What research team said to teachers:

We (the USF research team) are requesting your assistance in recruiting students for participation in a study to understand how students' psychological wellness predicts their school performance, physical health, social relationships, and sense of self. We aim to recruit approximately 325 students who are currently in grades 9 through 11 at your school, so approximately 110 students in the grade level you teach. The administrative team at your school has selected your classroom for participation. Students in your identified classroom will be asked to take part this year by filling out a packet of paper-and-pencil surveys on one occasion. Next year, they will be asked to complete the same surveys so that we can track change in students' behavior over time. The USF research team will administer the surveys to large groups of students in a private location at the school (such as a media center). These surveys will ask students questions about their thoughts, behaviors, and attitudes towards school, family, and life in general, as well as physical health and after-school activities. Please follow the following steps to recruit students for participation in the survey. First, share the brief verbal description of the study (provided below) with the students. Then, distribute two copies of the parent consent forms to all students in your identified classroom. Ask the students to keep one copy of the form for their family's records; the second copy should be signed by parents/guardians and returned to you. Later in the school year, you will be asked to complete a questionnaire(s) about the behavior of each of your students who is a participant in the study. Completion of the questionnaire(s) is expected to take between 10 and 15 minutes. You will receive a $5 gift card for each student that you rate. THANK YOU for your help with this important research study!

Appendix B

Recruitment Script Teachers Read to Students

What teachers were instructed to say to students:

Researchers from the University of South Florida want to find out more about the links between students' psychological wellness and their school performance, physical health, social relationships, and sense of self. You are being asked to participate because you are a student in this class. Participation will involve completing a packet of surveys during regular school hours on one occasion (during one class period) this year. The surveys ask questions about your thoughts, behaviors, and attitudes towards school, family, and life in general, as well as physical health and after-school activities. All responses to the survey will be kept confidential; because the USF research team is interested in general trends among teenagers, your responses will be combined with the surveys completed by all other students who take part in the study- you will not be identified by name. Next year, we will ask you to complete the same surveys so that we can track change in student behavior over time. It is your choice whether or not you want to participate. ***All students who return completed parent consent forms (whether or not your parent gives you permission to participate) will be included in one of several drawings for $50 gift cards to a local mall.*** *Also,* ***each student who completes the surveys will receive a pre-paid movie ticket****. Only students with written parent permission can participate, so please bring these consent forms home to your parents or guardians. Your parent should keep one copy for the family's records, and complete the other copy. Please return the copy that is completed by your parent or guardian to me as soon as possible.*

Appendix C

Parent Consent Form

Dear Parent or Caregiver:

This letter provides information about a research study that will be conducted in your high school by investigators from the University of South Florida. We are conducting the study to determine the links between students' psychological wellness and their school performance, physical health, social relationships, and sense of self.

- ✓ 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 graduate students in the USF College of Education are also on the team. We are planning the study in cooperation with the principal of your child's school 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 High School Students." Your child is being asked to participate because he or she is a student at a high school within Hillsborough County Public Schools (HCPS).

- ✓ Why Your Child Should Participate: We need to learn more about what leads to happiness and health during the teenage 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 your high school 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 him/herself, school, teachers, classmates, family, and life in general. The surveys will also ask about your child's physical health and involvement in after-school activities. Completion is expected to take your child between 45 and 60 minutes. We will administer the questionnaires 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 enrolled in a HCPS high school next year, he or she will be asked to complete the same surveys again so that we can examine change over time. In addition to completing surveys, a small number of students selected due to their specific mental health profile will be asked to participate in one brief (30 minutes or less) interview. The interview will occur during regular school hours and consist of us asking students additional questions about the thoughts and behaviors that affect their happiness. In total, participation will take about 60 to 90 minutes of your child's time each year for the next two years. 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 discipline referrals. Finally, one of your child's teachers will be asked to complete a rating scale about your child's behavior at school.

- ✓ 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 HCPS, USF, or any other party.

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

Appendix C (Continued)

- ✓ 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 relationships between students' psychological wellness (particularly their subjective well-being, also referred to as happiness) and optimal development with respect to academic achievement, physical health, social relations, identify formation, and engagement in meaningful activities. 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 designated teacher.

Sincerely,

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

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

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

Appendix C (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

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

Appendix D

Student Assent Form

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 links between students' psychological wellness and their school performance, physical health, social relationships, and sense of self.

- ✓ 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 graduate students in the USF College of Education are also 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 High School Students." You are being asked to take part because you are a student at a high school within Hillsborough County Public Schools (HCPS).

- ✓ Why You Should Take Part in the Study: We need to learn more about what leads to happiness and health during the teenage 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 your high school to show them how happiness is related to school grades and behavior, physical health, social relationships, and identity. 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 and after-school activities. 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. A few months later, some students will be asked to participate in one brief (30 minutes or less) interview. If you take part in the interview, we will ask you additional questions about thoughts and behaviors that influence your happiness.

- ✓ 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 HCPS, 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 four years after the study is done. 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.

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

Appendix D (Continued)

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, social relationships, identity development, and engagement in meaningful activities. 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 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.
Associate 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 the study	Printed name of child	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

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

Appendix E

Teacher Consent Form

Dear Teacher:

This letter provides information about a research study that will be conducted in your high school by investigators from the University of South Florida. We are conducting the study to determine the links between students' psychological wellness and their school performance, physical health, social relationships, and sense of self.

- ✓ 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 at your school to make sure that the study provides information that will be useful to the school. Why We are Requesting Your Participation: This study is being conducted as part of a project entitled, "Subjective Well-Being of High School Students." You are being asked to participate because you are a teacher of at least one student who is a participant in the project.

- ✓ Why You 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 teachers may help increase our overall awareness of the importance of monitoring students' happiness. In addition, information from the study will be shared with you and other staff at your school in order to increase your knowledge of the relationship between students' mental health and their educational performance, physical health, and social relationships. Please note that you will be compensated $5 for each rating scale you complete.

- ✓ What Participation Requires: You will be asked to complete a questionnaire(s) about the behavior of each of your students who is a participant in the study. Completion of the questionnaire(s) is expected to take between 10 and 15 minutes.

- ✓ Please Note: Your decision to participate in this research study must be completely voluntary. You are free to participate in this research study or to withdraw from participation at any time. If you choose not to participate, or if you withdraw at any point during the study, this will in no way affect your relationship with HCPS, USF, or any other party.

- ✓ Confidentiality of Your Responses: There is minimal risk for participating in this research. Your 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 individual responses will not be shared with school system personnel or anyone other than the USF research team. Your completed questionnaire(s) will be assigned a code number to protect the confidentiality of your responses. Only the USF research team will have access to the locked file cabinet stored at USF that will contain all records linking code numbers to participants' names.

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

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

Appendix E (Continued)

- ✓ 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, you may contact a member of the Division of Research Compliance of the USF at (813) 974-9343, or the Florida Department of Health, Review Council for Human Subjects at 1-850-245-4585 or toll free at 1-866-433-2775.

- ✓ Want to Participate? To participate in this study, please sign the attached consent form.

Sincerely,

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

Consent to Take Part in this Research Study

I freely give my permission to 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.

_____	_____	_____
Signature of teacher	Printed name of teacher	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

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

Appendix F

Demographic Form

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

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

1. I am in grade: 9 10 11 12

2. My gender is: Male Female

3. Do you receive free or reduced-price school 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. I live with my:
   a. Mother and Father
   b. Mother only
   c. Father only
   d. Mother and Step-father (or partner)
   e. Father and Step-mother (or partner)
   f. Grandparent(s)
   g. Other relative (please specify): _____
   h. Other (please specify): _____

7. My father's highest education level is:
   a. 8th grade or less
   b. Some high school, did not complete
   c. High school diploma/GED
   d. Some college, did not complete
   e. College/university degree
   f. Master's degree
   g. Doctoral level degree (Ph.D, M.D.) or other degree beyond Master's level

8. My mother's highest education level is:
   a. 8th grade or less
   b. Some high school, did not complete
   c. High school diploma/GED
   d. Some college, did not complete
   e. College/university degree
   f. Master's degree
   g. Doctoral level degree (Ph.D, M.D.) or other degree beyond Master's level

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

Appendix F (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

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

Appendix G

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	**Disagree**	**Slightly Disagree**	**Slightly Agree**	**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

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

Appendix H

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.

Appendix I

Adolescent Personal Style Inventory (APSI; Lounsbury, Tatum, Gibson, Park, Sundstrom, Hamrick, et al., 2003)

Read each sentence. **Circle** the answer that describes you the best. Remember to answer honestly- no parent or teacher will ever see your answers. Use this scale to help you answer each statement:

1 = **Strongly Disagree**- you strongly disagree with the sentence; it really does not describe you at all
2 = **Disagree**- you disagree with the sentence; it does not describe you
3 = **In Between**- you are not sure whether you agree or disagree with this sentence; you are undecided
4 = **Agree**- you agree with the sentence; it describes you
5 = **Strongly Agree**- you strongly agree with the sentence; it really describes you

Sentence:	**Strongly Disagree**	**Disagree**	**In Between**	**Agree**	**Strongly Agree**
1. I try to get along with other people, even if I don't agree with them. A	1	2	3	4	5
2. I am always very careful when I am doing school work. C	1	2	3	4	5
3. My mood goes up and down more than most people. N	1	2	3	4	5
4. I like meeting new people. E	1	2	3	4	5
5. I like to learn about new ways of doing things. O	1	2	3	4	5
6. I sometimes make fun of other kids in school. A	1	2	3	4	5
7. I always finish everything I start. C	1	2	3	4	5
8. Sometimes I don't feel like I'm worth much. N	1	2	3	4	5
9. It is hard for me to make new friends. E	1	2	3	4	5
10. I would like to keep going to school for many years just to learn new things. O	1	2	3	4	5
11. People who know me well think I am a very nice, kind person. A	1	2	3	4	5
12. I like to plan things before I do them. C	1	2	3	4	5
13. I often feel tense or stressed out. N	1	2	3	4	5
14. I am very outgoing and talkative. E	1	2	3	4	5
15. I like to read books on different subjects. O	1	2	3	4	5
16. If anybody says something mean to me, I say something mean right back to them. A	1	2	3	4	5
17. I am always on time for meetings with other people. C	1	2	3	4	5
18. I sometimes feel like everything I do is wrong or turns out bad N	1	2	3	4	5
19. I smile a lot when I am around other people. E	1	2	3	4	5
20. I like to try new things. O	1	2	3	4	5
21. I am very easy to get along with. A	1	2	3	4	5
22. I try to be very neat and organized in my homework and class assignments. C	1	2	3	4	5

Appendix I (Continued)

23. I feel like I can't handle everything that is going on in my life. N	1	2	3	4	5
24. I like to go to big parties where there are a lot of people. E	1	2	3	4	5
25. I like to take classes where I learn something I never knew before. O	1	2	3	4	5
26. I sometimes trick other people into doing what I want them to do. A	1	2	3	4	5
27. My teachers can always count on me to do what they ask me to do in class. C	1	2	3	4	5
28. I sometimes feel like I'm going crazy. N	1	2	3	4	5
29. It is fun for me to talk to people I have just met. E	1	2	3	4	5
30. I like to work on problems and puzzles. O	1	2	3	4	5
31. I am always polite to other people. A	1	2	3	4	5
32. I like to keep everything I own in its proper place. C	1	2	3	4	5
33. I get mad easily. N	1	2	3	4	5
34. I am a fairly quiet person in most group settings. E	1	2	3	4	5
35. I like to visit new places. O	1	2	3	4	5
36. I sometimes like to argue with other people just for fun. A	1	2	3	4	5
37. I put away all of my things when I am done with them. C	1	2	3	4	5
38. I sometimes feel sad or blue. N	1	2	3	4	5
39. If I am in a group and no one says anything, I will say something first E	1	2	3	4	5
40. I like to find out how people live in other places in the world. O	1	2	3	4	5
41. I like to help other people whenever they need it. A	1	2	3	4	5
42. I always clean up after I have made a mess. C	1	2	3	4	5
43. I feel good about myself most of the time. N	1	2	3	4	5
44. I am usually a cheerful person. E	1	2	3	4	5
45. I would like to learn how to read and speak a foreign language. O	1	2	3	4	5
46. I like to learn new games and hobbies. O	1	2	3	4	5
47. Sometimes I say things on purpose to hurt other people's feelings. A	1	2	3	4	5
48. I enjoy coming up with new solutions for everyday problems. O	1	2	3	4	5

Note. This appendix has been modified in font size to comply with margin requirements.
A = Agreeableness subscale, C = Conscientiousness subscale, E = Extraversion subscale,
N = Neuroticism subscale, O = Openness subscale

Appendix J

Child and Adolescent Social Support Scale (CASSS, Malecki, Demaray, & Elliot, 2002)

On this page, please respond to sentences about some form of support or help that you might get from either a parent, a teacher, or classmates. Read each sentence carefully and respond to them honestly. **Rate how often you receive the support described**. Do not skip any sentences. Thank you!

	My Classmates	Never	Almost Never	Some of the	Most of the	Almost Always	Always
25	… treat me nicely.	1	2	3	4	5	6
26	… like most of my ideas and opinions.	1	2	3	4	5	6
27	… pay attention to me.	1	2	3	4	5	6
28	… give me ideas when I don't know what to do.	1	2	3	4	5	6
29	… give me information so I can learn new things.	1	2	3	4	5	6
30	… give me good advice.	1	2	3	4	5	6
31	… tell me I did a good job when I've done something well.	1	2	3	4	5	6
32	… nicely tell me when I make mistakes.	1	2	3	4	5	6
33	… notice when I have worked hard.	1	2	3	4	5	6
34	… ask me to join activities.	1	2	3	4	5	6
35	… spend time doing things with me.	1	2	3	4	5	6
36	… help me with projects in class.	1	2	3	4	5	6

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

Appendix K

Academic Self-Perceptions and Attitudes Toward School Subscales of the School Attitude Assessment Survey—Revised (SAAS-R; McCoach & Siegle, 2003)

Please rate how strongly you agree or disagree with the following statements. In answering each question, use a range from (**1**) to (**7**) where (**1**) stands for **strongly disagree** and (**7**) stands for **strongly agree**. Please circle only one response choice per question.

Statement:	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree
1. I am intelligent.	1	2	3	4	5	6	7
2. I can learn new ideas quickly in school.	1	2	3	4	5	6	7
3. I am smart in school.	1	2	3	4	5	6	7
4. I am glad that I go to this school.	1	2	3	4	5	6	7
5. This is a good school.	1	2	3	4	5	6	7
6. I am good at learning new things in school.	1	2	3	4	5	6	7
7. This school is a good match for me.	1	2	3	4	5	6	7
8. School is easy for me.	1	2	3	4	5	6	7
9. I like this school.	1	2	3	4	5	6	7
10. I can grasp complex concepts in school.	1	2	3	4	5	6	7
11. I am capable of getting straight A's.	1	2	3	4	5	6	7
12. I am proud of this school.	1	2	3	4	5	6	7

Note. This appendix has been modified in font size to comply with margin requirements. Academic Self-Perceptions scale is comprised of items 1, 2, 3, 6, 8, 10, and 11. Attitudes toward School scale is comprised of items 4, 5, 7, 9, and 12.

Appendix L

Life Events Checklist (LEC; Johnson & McCutcheon, 1980)

Below is a list of things that sometimes happens to people. Circle "**Yes**" next to each of the events you **have** experienced during the past year (12 months). Circle "**No**" for each event you **have not** experienced during the past year. Please read over the entire list before you begin.

EVENT	EXPERIENCED in past year?	
1. Moving to new home	Yes	No
2. New brother or sister	Yes	No
3. Changing to new school	Yes	No
4. Serious illness or injury of family member	Yes	No
5. Parents divorced	Yes	No
6. Increased number of arguments between parents	Yes	No
7. Mother or father lost job	Yes	No
8. Death of a family member	Yes	No
9. Parents separated	Yes	No
10. Death of a close friend	Yes	No
11. Increased absence of parent from the home	Yes	No
12. Brother or sister leaving home	Yes	No
13. Serious illness or injury of close friend	Yes	No
14. Parent getting into trouble with law	Yes	No
15. Parent getting a new job	Yes	No
16. New stepmother or stepfather	Yes	No
17. Parent going to jail	Yes	No
18. Change in parents' financial status	Yes	No

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