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Adaptive Styles and Coping Strategies of Youth Diagnosed with Cancer: Relationship to Well-Being, Psychosocial and Educational Adjustment, and Parents' Adaptive Styles

Renee Corbett
University of South Florida, rcorbet2@mail.usf.edu

Adaptive Styles and Coping Strategies of Youth Diagnosed with Cancer: Relationship to Well-Being, Psychosocial and Educational Adjustment, and Parents' Adaptive Styles

by

Renee R. Corbett

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

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DEDICATION

Dad, for years you have introduced me as your daughter that's "going to be a doctor!" Thank you for continuing to believe in me and for providing me with unending support – not only in these years in graduate school, but in all the years leading up to it. You've always been a wonderful father, and now you've become my cherished friend (and biker buddy!) Mother, you have always been and always will be the "wind beneath my wings." As I soar to the end of this journey, I know how instrumental you were in inspiring my path. As my adoring mother and as caretaker of the elderly, the sick, and the dying, you modeled empathy, compassion, love, and the art of listening. While you fought your own battle with cancer, I witnessed you leave your chemotherapy sessions, don your scarf or turban, and go to visit your Hospice patients. Your selflessness, strength and joie de vivre will always inspire me. My mother, my hero, and now my angel.

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ABSTRACT

Although almost 16,000 children and adolescents are diagnosed with cancer each year, the incident rates have remained stable over recent years, and mortality has decreased consistently since 1975 (American Cancer Society, 2016). With increased survivorship, research and practice in pediatric oncology has focused more on the psychosocial well-being of patients during and after treatment. With research repeatedly indicating that patients and families appear to exhibit great resilience and adjustment, and low incidences of psychosocial difficulties (e.g., Kazak, 1994, Eiser et al. 2000), some researchers have examined adaptive style as a possible construct that may help explain the predominantly positive outcomes (e.g., Phipps and Srivastava, 1997). The current study examined adaptive styles and coping strategies in youth diagnosed with cancer to determine relationships between these variables, as well as between each of these constructs and measures of subjective well-being, and psychosocial and educational adjustment. This study was also the first to examine relationships between youth and parent adaptive styles.

A total of 180 youth between 9 and 17 years old who have been diagnosed with cancer participated in this study. Each youth also had one parent who participated. Each youth participant completed a packet of self-report measures used to determine adaptive style group, coping strategy use, and subjective well-being scores. Each parent participant completed a questionnaire to provide sociodemographic information about the youth and parent, as well as information about their child's illness and school experience.

Parents also completed a packet of measures used to provide information about their child's psychosocial adjustment and risk and to determine parent adaptive style. Data were analyzed to examine relationships between parent and youth adaptive style, group differences on measures of subjective well-being, psychosocial adjustment/risk, and academic variables, relationships between adaptive style and coping strategy use, and the predictive strength of adaptive style and coping strategies for the outcome variables.

Although the distribution of adaptive styles was similar among participants in the current study compared to those in previous studies of adaptive style for Repressive, Low Anxious, and Defensive High Anxious adaptive styles, there was a higher percentage of participants with High Anxious adaptive style in the current study. A statistically significant bidirectional relationship was found between youth and parents with a Repressive adaptive style. Results revealed significant differences between groups on measures of subjective well-being and internalizing behaviors, with Repressive adaptive displaying the highest subjective well-being and lowest internalizing behavior scores. Repressive and Low Anxious adaptive style differed significantly from the two High Anxious groups on the school scale scores, with the Repressive and Low Anxious groups having more positive outcomes on the measure. Relating to coping strategies, youth in the two High Anxious groups used more strategies all together, including both adaptive and non-adaptive strategies. However adaptive strategies were more frequently related to positive adaptive styles and outcomes, while non-adaptive strategies tended to have a stronger relationship to High Anxious adaptive style and negative outcomes. Limitations are discussed, and suggestions for future research and practical implications are offered, based on the results of the current study.

CHAPTER ONE:

INTRODUCTION

Statement of the Problem

Major medical advances in pediatric oncology in the past several decades have greatly increased survival rates for children diagnosed with cancer. While the five-year survival rate in the 1970's was 58%, 83% of children diagnosed in 2005-2011 will survive five years or more (American Cancer Society, 2016). Although these rates have greatly improved, cancer remains the second leading cause of death among children ages 1 to 14 years, and the leading cause of death in children from disease. Additionally, incidence rates have been increasing by 0.6% annually since 1975. It was estimated that 10,380 children birth to 14 years would be diagnosed with cancer in 2016 (American Cancer Society, 2016).

Although survival has become more likely, consequences of the disease and treatment side effects can negatively impact the lives of these children and their families. Related effects may occur during treatment, or even months or years after treatment. They may include organ damage, secondary cancers or negative cognitive effects. Advances in medical treatment have allowed researchers and practitioners to focus on the well-being of children in treatment, childhood cancer survivors, and their families. Although this disease can have a very negative impact on well-being for some youth, it is evident that most are adapting very well, exhibiting positive psychosocial outcomes and presenting with low incidence of mental health problems (e.g., Compas et al., 2014; Eiser, Hill, & Vance, 2000; Kazak, 1994; Kazak & Noll, 2015; Phipps & Srivastava, 1997; Radcliffe, Bennet, Kazak, Foley, & Phillips, 1996). Thus, there tends to be

a subset of youth who are struggling with socioemotional adaptation, while most of their peers who also have been diagnosed with cancer appear to be socioemotionally similar to healthy peers. For example, approximately 20% of adolescent cancer survivors have been found to be in the clinical range for posttraumatic stress disorder (Barakat, Alderfer, & Kazak, 2006), and 6-8% of young adolescent cancer survivors have been found to have high levels of hopelessness (Kazak, Christakis, Alderfer, & Coiro, 1994). In a review of research from the 1970's through the 1990's, Kazak (1994) indicates that a subset of 10-20% of children with cancer appear to experience ongoing psychosocial difficulties.

Families of youth with cancer also exhibit a similar trend, with smaller subsets exhibiting more severe adjustment difficulties. Using a Pediatric Psychosocial Preventative Health Model (PPPHM), Kazak (2006) indicates that family adaptation is categorized by three groups: Universal (competent and adaptive), Targeted (some elevated risk for psychosocial difficulties), and Clinical/Treatment (more evident symptomology of psychosocial problems). Using the Psychosocial Assessment Tool (Kazak et al., 2001) to assess adjustment, Kazak and colleagues have been able to categorize families by levels of need within the PPPHM. Kazak and Noll (2015) report that approximately 65% of families are in the Universal category, approximately 20% – 25% in the Targeted category, and less than 10% are at the Clinical/Treatment level. Such results indicate positive adjustment for the majority of children and families affected by pediatric cancer, as well as a need to understand the factors that may be contributing to the differences in levels of adjustment so that appropriate intervention can be provided for those experiencing more difficulty.

Recognizing that the majority of these youth exhibit positive psychosocial adjustment, some researchers have taken a positive psychology approach, focusing on positive adjustment

rather than psychopathology (Barrera, Wayland, D'Agostino, Gibson, Weksberg, & Malkin, 2003; Phipps, 2007; Woodgate, 1999). In support of a positive psychology approach, Larson (2000) suggests that understanding the development of psychological well-being is equally important as understanding the development of psychopathology. Thus, a trend in pediatric psychooncology research is the examination of factors such as quality of life, subjective well-being, coping and adjustment, and the relationship of these factors to differences in youth and families who are at varying risk for psychosocial difficulties.

One proposed explanation for these differences in adjustment is the adaptive styles of children with cancer (Phipps & Srivastava, 1997). An adaptive style paradigm developed by Weinberger, Schwartz, and Davidson (1979) categorizes these styles by levels of subjective distress and defensiveness. The four adaptive style categories identified by this paradigm are high anxious, low anxious, defensive high anxious, and repressive. Children with cancer tend to adopt a repressive adaptive style more frequently than healthy peers, reporting the lowest levels of anxiety but scoring high on measures of defensiveness (i.e., the tendency to give socially desirable responses) (Canning, Canning, & Boyce, 1992; Jurbergs, Russel, et al., 2008; Phipps & Srivastava, 1997). Because this adaptive style in children with pediatric cancer is associated with such positive psychosocial indicators as lower levels of posttraumatic stress symptoms (PTSS) and higher health-related quality of life (HRQoL), it is suggested that a repressive adaptive style in this population may be a pathway to resilience (Phipps et al. 2001, 2002, 2006, & 2007).

Although these studies of adaptive style indicate that this style correlates with lower levels of PTSS and higher HRQoL, there are associations with psychosocial variables that remain unexplored. For example, no current research has examined associations between

adaptive style and subjective well-being, educational outcomes, or emotional and behavioral strengths or difficulties. Further, only one study has examined adaptive style in parents of children who have been diagnosed with cancer (Phipps, Larson, Long, & Rai, 2006). However, this study conducted by Phipps et al. (2006) did not explore whether there is a correlation between parental and children's styles. Associations between adaptive style and positive psychosocial outcomes would contribute to the explanation of why some youth appear to adapt so well despite the difficulties they face because of their illness. Additionally, associations between youths' adaptive style, psychosocial outcomes and parental adaptive style may help to inform interventions, so that the subset of youth and families who appear to have more severe difficulties in adjustment may adopt the adaptive style of better-adjusted peers to promote more successful adaptation.

Theoretical Framework

The framework for the current study was guided by Bronfenbrenner's (1979) social ecology theory, the biopsychosocial medical model (Engel, 1976; Kazak, 2002), and the Biobehavioral Family Model (Wood, 1994), which all reflect the social ecological concept of bidirectional influences between the child and systems within the child's environment. Social ecology theory depicts a child's development within the context of a nested arrangement of concentric structures (micro-, meso-, exo-, and macrosystems) that are the enveloping systems within which the child develops (see Figure 1). Although the systems are increasingly distal, they all affect the child's well-being. For example, the child interacts directly with parents, teachers, and peers (microsystems), but also is affected by the interactions between microsystems (e.g., interactions between teachers and parents; mesosystems), health and welfare services (exosystems), and cultural customs (macrosystems). Additionally, the child is affected by

chronosystems which include changes over time across all systems (i.e., physical development, changes in health care law). Another key feature of this theory is the fluid, dynamic interactions among the systems, representing a bidirectional influence between the child and the child's environment as well as between systems in the child's environment.

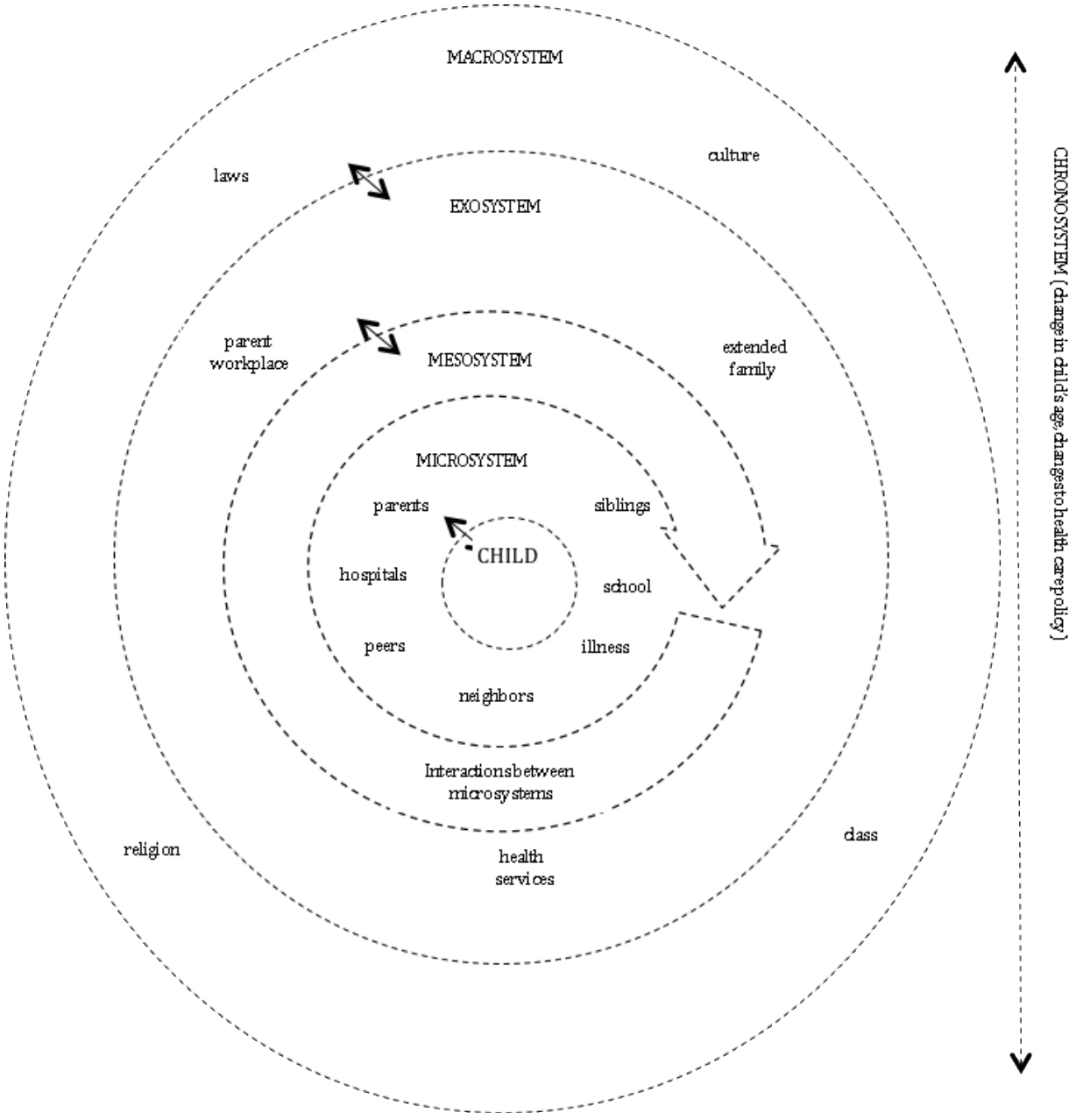

Figure 1. Illustration of Bronfenbrenner's Social Ecology Theory Applied to Pediatric Illness.

Kazak (2002, 2006), and Kazak and Noll (2015) provide additional support for the use of this model in pediatric cancer research and practice, by using a biopsychosocial framework to guide research and practice in pediatric oncology. For example, in consultation with children diagnosed with cancer, interactions between the child, family, social support networks, school system, health care professionals, health care policy, and cultural beliefs must all be considered. Using this framework, Kazak (2006) has developed the Pediatric Psychosocial Preventative Health Model (PPPHM) to conceptualize how families of chronically ill children might be provided with support to meet their individual levels of need.

Engel (1977) suggested that a biomedical model of disease is inadequate for explaining the many factors that interact to culminate in disease or manifest illness. He proposed a more inclusive biopsychosocial model to include social, psychological, and behavioral dimensions of illness, suggesting that a holistic approach to examining the human experience of illness is necessary to acknowledge the interactions between experiential factors and biological factors. This model recognizes both genetic and environmental influences in the prevention, development, and outcomes of illness. The biopsychosocial model allows for the importance of biomedical influence, while taking into account a systems perspective that includes the patient, social context, and the health care system (i.e., primary care physician), recognizing that all levels of systems are linked so that any change in one affects the others.

Wood (1994) also developed a systems model with a holistic approach to medicine focusing on the importance of the family system. The Biobehavioral Family Model (BBFM) proposes that family systems properties (i.e., proximity, generational hierarchy, triangulation, parental relationship and interpersonal responsivity) influence each other and interact with

individual biobehavioral reactivity (the intensity of physiological, emotional and behavioral response to stimuli) to buffer or activate psychobiological processes related to disease.

In summary, a combination of the social ecological theory, biopsychosocial medical model, and family behavioral model provide the foundation for the conceptual framework of the current study. Social ecological theory and these holistic medical models emphasize the multi-directional influences between the chronically ill child, individuals in the child's immediate and more distant environment, and various other factors (i.e., social, psychological, biological, educational) within the systems that surround the child. The current study examined the associations between these factors, recognizing the importance of considering multiple bidirectional influences between youth and the systems within which they are developing.

Purpose of the Study

The current study examined the adjustment of youth who have been diagnosed with cancer within a biospsychosocial framework. The results of this study add to the current literature base on pediatric cancer patients' adaptive style. A sample of youth, ages 9 to 17 years, was assessed to determine prevalence rate of repressive adaptive style among these participants. A common adaptive style among parents of these youth also was investigated, and the possible relationship between parents' and children's adaptive style was explored. The relationship between adaptive style and coping strategies was examined. Finally, the relationships between children's adaptive style and coping strategies and their subjective well-being, education-related variables, internalizing and externalizing behavioral strengths difficulties, and social competence were investigated.

Research Questions

The following research questions were addressed:

1. What categories of adaptive style are represented in a sample of youth who have been diagnosed with cancer, as measured by the Children's Social Desirability (CSD) scale and the State-Trait Anxiety Index for Children (STAIC)?

   It was hypothesized that a repressive adaptive style would be represented among a sample of youth diagnosed with cancer within the range represented in past research of adaptive style among youth diagnosed with cancer (23 to 36%; Hancock and Phipps, 2006; Phipps & Srivistava, 1997).

2. What categories of adaptive style are represented in a sample of parents of youth who have been diagnosed with cancer, as measured by the State-Trait Anxiety Inventory (STAI) and the Marlowe-Crowne Social Desirability Scale (MCSDS)?

   It was hypothesized that the representation of repressive adaptive style among a sample of parents whose children have been diagnosed with cancer would be similar to the percentage of parents found in a previous study of parent adaptive style (28%; Phipps et al., 2006).

3. Is there a relationship between youths' adaptive styles and their parents' adaptive styles?

   It was hypothesized that parental adaptive style would be correlated with their children's styles, in that youth will be more likely to have similar adaptive styles to their parents.

4. Is there a difference between youth with different adaptive styles when they are compared on levels of subjective well-being, as measured by the Student Life Satisfaction Scale (SLSS) and the Positive and Negative Affect Scale – Children (PANAS-C)?

It was hypothesized that a repressive adaptive style, as compared to other adaptive styles, in youth diagnosed with cancer would be more positively correlated with high levels subjective well-being.

5. Is there a difference between youth with different adaptive styles when they are compared on psychosocial adjustment/risk, as measured by the Child Behavior Checklist (CBCL)?

   It was hypothesized that a repressive adaptive style, as compared to other adaptive styles, in youth diagnosed with cancer would be more positively correlated with positive psychosocial adjustment.

6. Is there a difference between youth with different adaptive styles when they are compared on education outcome variables, as measured by the School Scale of the CBCL and parent report of enrollment in special education services and grade promotion?

   It was hypothesized that a repressive adaptive style, as compared to other adaptive styles, in youth diagnosed with cancer would be more positively correlated with desirable education outcomes (i.e., average school scale scores, maintaining status in general education setting and grade promotion).

7. Is there a relationship between adaptive style and coping strategies, as measured by the Cognitive Emotion Regulation Questionnaire – kids (CERQ-k)?

   It was hypothesized that adaptive style categories which have been associated with better adjustment outcomes would have stronger relationships with coping strategies that are considered "adaptive," while adaptive style categories which have been associated with poorer adjustment outcomes would have stronger relationships with coping strategies that

are considered “maladaptive” (e.g., repressive adaptive style will have strong relationship with positive reappraisal and positive refocusing).

8. Do adaptive styles, coping strategies, or a combination of both, best predict subjective well-being, as measured by the Student Life Satisfaction Scale (SLSS) and the Positive and Negative Affect Scale – Children (PANAS-C)?

   It was hypothesized that adaptive style categories would better predict subjective well-being than the whole set of coping strategies, but that there would be subsets of coping strategies that predict subjective well-being at least as well as adaptive style categories predict this outcome variable.

9. Do adaptive styles, coping strategies, or a combination of both, best predict psychosocial adjustment/risk, as measured by the Child Behavior Checklist (CBCL)?

   It was hypothesized that adaptive style categories would better predict psychosocial adjustment and risk than the whole set of coping strategies, but that there would be subsets of coping strategies that predict psychosocial adjustment and risk at least as well as adaptive style categories predict these outcomes.

10. Do adaptive styles, coping strategies, or a combination of both, best predict education outcome variables, as measured by the School Scale of the CBCL and parent report of child’s enrollment in special education services and grade promotion?

    It was hypothesized that adaptive style categories would better predict education outcome variables than the whole set of coping strategies, but that there would be subsets of coping strategies that predict education outcomes at least as well as adaptive style categories predict these outcomes.

Significance

There is a paucity of research examining the pathways to positive adjustment experienced by the majority of youth diagnosed with cancer. In order to promote a positive psychology approach, some researchers have examined adaptive style as a possible explanation for this resilience (e.g., Phipps et al., 2001, 2002, 2006, & 2007). Currently, this research indicates that a repressive adaptive style in children may be one possible explanation as it is associated with some indicators of positive psychosocial adjustment. However, aside from an association with fewer symptoms of post-traumatic stress and greater quality of life, little is known about the association between adaptive style and other indicators of adjustment. Additionally, no studies to date have investigated the relationship between adaptive styles of children and their parents.

The present study addressed the gaps in the literature by examining a positive psychology approach to understanding that most children with cancer appear to be psychosocially well-adjusted, despite the impact of this serious illness on their lives. The results of this study will inform mental health professionals and educational personnel of the relationship between adaptive styles in children with cancer and those of their parents, as well as the relationship between the adaptive style in these children and their coping strategies, subjective well-being, educational adjustment, and psychosocial adjustment.

Definition of Terms

Adaptive Style: Adaptive style is categorized using measures of subjective distress and defensiveness. The four categories of adaptive style include: high anxious, low anxious, defensive high anxious, and repressive (Weinberger, Schwartz, and Davidson (1979). Individuals categorized as High Anxious report high levels of distress and score low on measures of defensiveness. Individuals categorized as Low Anxious report levels of distress and score low

on measures of defensiveness. Individuals categorized as Defensive High Anxious report high levels of distress and score high on measures of defensiveness. Individuals who are categorized as Repressive report low levels of distress and score high on measures of defensiveness.

Late Effects: Late effects include a wide range of adverse effects that occur after treatment for cancer ends (Eiser, 2007). They may manifest months to years after treatment completion.

Parent: The term "parent" in the current study is broadly defined to include a biological, step-, or adoptive parent, or an adult primary caregiver who has the most responsibility in caring for the youth participant.

Subjective Well-Being: Subjective well-being is an indicator of quality of life that encompasses the presence of positive affect, life satisfaction, and domain satisfaction (i.e. family, health) (Diener, Suh, Lucas, & Smith, 1999).

Quality of Life: Quality of Life is the combined measure of physical, social, and mental well-being (Levi, 2006).

CHAPTER TWO:

REVIEW OF RELATED LITERATURE

Introduction

Approximately 15,780 children and adolescents (under the age of 20) per year are diagnosed with cancer (American Cancer Society, 2014). It is estimated that one in 300 boys and one in 333 girls will develop cancer before the age of 20. While the incidence of cancer in children has increased at a rate of .6% since 1975, incident rates have become more stable over recent years, and mortality from this disease has consistently declined since 1975 due to significant advances in treatment (American Cancer Society, 2016; Children's Oncology Group, 2006; Ries et al., 1999). The combined 5-year survival rate for all childhood cancers has improved from 58% in the mid 1970s to 83% in the most recent period of data collection (2005-2011), with the survival rate for some cancers as high as 90%, and the 10-year survival rate over 75% (American Cancer Society, 2016; Boring, Squires, & Tong, 1993; Children's Oncology Group, 2006; National Cancer Institute, 2008). In fact, there were 379,112 survivors of childhood cancer living in the United States as of January 1, 2010 (American Cancer Society, 2014).

With these increased survival rates, research and practice in pediatric oncology during the last few decades have focused more on the well-being of the patient during and after treatment. Although previous research in psychology concentrated on easing the pain and emotional distress of a child facing death, more recent research has focused on interventions for patients, survivors and their families to improve overall quality of life (McKnight, 2005). Additionally, many

children with cancer, who previously would have been unable to attend school or participate in social activities, are now reintegrated into those settings during treatment or shortly after treatment completion (Armstrong, Blumberg, & Toledano, 1999). Thus, it is important for professionals in the educational system to be aware of the basic issues related to childhood cancers and their treatment, as well as potential consequences, or late effects, which can impact the cancer survivor's cognitive, academic and psychosocial development and functioning. Areas of focus for the pediatric cancer population in psychology research and practice have included psychosocial and educational adjustment for patients and outcomes for survivors.

This literature review will discuss background information related to pediatric cancer, including information about the symptoms and sequelae of the most common types of childhood cancers and their treatment. Research related to psychosocial and educational adjustment and outcomes for pediatric cancer survivors will be reviewed, as well as the reciprocal interactions between the child, illness, and family. This review will address a shift in research from a psychopathological perspective to a positive psychology perspective, with special attention to investigations of adaptive styles of children with pediatric cancer and their parents. Finally, interventions pertaining to late effects of childhood cancer will be discussed.

Overview of Childhood Cancers and Treatment Modalities

The impact and effects of cancer are dependent on multiple factors, including the type of cancer and the treatment received. Thus, this section will provide background information on the most common types of cancer and their respective treatments. The most common pediatric malignancy is leukemia (ALL), accounting for 30% of pediatric cancer cases (American Cancer Society, 2016). Leukemia is a cancer of the blood-forming cells found in bone marrow (American Cancer Society, 2015). Brain and other central nervous system (CNS) tumors

represent 26% of cases (American Cancer Society, 2016). Several other types of childhood cancers account for the remaining malignancies affecting children: Lymphomas (8%) originate in the lymph nodes. Neuroblastomas (6%) arise from immature nerve cells which form a tumor, most frequently on the abdomen or chest, and more rarely on the neck or pelvis (American Cancer Society, 2016; Brown, 2006; NCI, 2010). Renal (kidney) tumors (i.e., Wilms' tumor) account for 5% of pediatric cancers. Soft tissue sarcomas (3.3%) begin in muscle, fat, fibrous tissue, blood vessels, and other supporting tissue (American Cancer Society, 2010; NCI, 2010). The most common soft tissue sarcoma in children is rhabdomyosarcoma, tumors of striated muscle (NCI, 2010). Retinoblastoma (eye tumors) account for 2% of pediatric cancers, while another 2% of children who have cancer are diagnosed with osteosarcomas, or bone tumors (American Cancer Society, 2016). Finally, Ewing's sarcoma (1%) is a group of cancers of the bone and soft tissue that derive from the same type of stem cell (American Cancer Society, 2016; NCI, 2010). Unlike many adult cancers, childhood cancers are not typically the result of behavior or environmental factors (Kazak and Noll, 2016). Although some of these cancers can be hereditary (i.e. retinoblastoma), most arise prenatally or in the postnatal period as affected stem cells or genetic accidents (Izraeli & Rechavi, 2006; Steen, 2000). Thus they cannot be prevented, are not preceded by evident pre-malignant lesions, and are not amenable to early diagnosis (Izraeli & Rechavi, 2006). However, they are treatable.

In considering the impact of cancer on children, it is important to note that the effects of the diagnostic procedures and treatments, as well as the disease, must be considered. Diagnostic procedures may necessitate bone marrow aspiration, biopsy, lumbar punctures, and/or intravenous injections (Granowetter, 1994). Diagnostic procedures may be painful and

distressing for the child, while unavoidable delays in diagnosis and diagnostic conferences are also stressful and can be overwhelming to the patient and family (Granowetter, 1994).

Treatment includes a variety of procedures and drugs (i.e. surgery, chemotherapy, radiation, bone marrow transplantation) that can also be invasive, painful, and distressing for patients and their parents (American Cancer Society, 2010; Kazak, Boyer, et al. 1995; Zeltzer, 1994), and can result in neuropsychological consequences (Copeland, Dowell, Fletcher, & Bordeaux, 1988). The three primary modalities of treatment for childhood cancers are chemotherapy, surgery, and radiation therapy (American Cancer Society, 2016); Granowetter, 1994). Bone marrow transplantation is also used to treat leukemia, where bone marrow is the origin of the cancer.

Therapeutic protocols vary depending on the type of cancer, but typically include more than one of these treatment modalities. For example, the treatment for ALL usually includes an initial, highly intensive period of treatment remission induction, which normally lasts about one month and brings the disease into remission, using intensive drug therapy (Granowetter, 1994; Waber & Mullenix, 2000). Intensification (or consolidation) phase of treatment follows, beginning with central nervous system (CNS) treatment, which includes combined cranial radiation therapy (CRT) and drug therapy (intrathecal), or drug therapy alone. This period typically lasts for several months and is followed by maintenance therapy. Maintenance therapy often lasts about 2 years, usually consisting of drug therapies only, with periodic intrathecal therapy.

While treatment for brain tumors varies, the primary treatment generally includes surgery to remove as much of the tumor as possible without impairing function (Granowetter, 1994). Typically the treatment regimen includes a combination of surgery and radiation (local or

craniospinal), with or without chemotherapy (Butler & Haser, 2006; Granowetter, 1994). Neuropsychological sequelae of the high doses of radiation needed to treat brain tumors may be severe, particularly for children under 3 years old. Thus, chemotherapy is often employed post-surgery for as long as possible in order to delay radiation treatment in young children (Granowetter, 1994).

Effects of Cancer and Treatment

Childhood cancers are a large and diverse group of diseases that require various combinations of treatment modalities. As varied as the illness and treatments are, so too are the effects. The impact of these effects varies for cancer survivors, ranging from minor to severe, depending on cancer type, location of tumors, treatment modality, age at diagnosis, and gender (Eiser, 2007). The effects may manifest early with the first symptoms of illness or at diagnosis, and may continue or compound throughout treatment. Late effects of cancer can also occur after treatment ends. Across the trajectory of the illness, cancer and its treatment impacts children physically, cognitively, academically, behaviorally, and socio-emotionally.

Early Effects

Physical effects. Cancer is a genetic defect at the cellular level that 1) produces abnormal, rapid, and uncontrolled proliferation of cells, 2) can occur in any organ system, 3) will spread to cells of other organs (metastasize) if not treated, and 4) results in diminished, impaired or loss of normal cell and organ function (Armstrong, 2006; Granowetter, 1994).

Manifestations of the disease vary depending on the organ of origin (Granowetter, 1994). For example, leukemias manifest as disorders of blood cell production (i.e., anemia, bleeding, infection, and fever), easy bruising, fever, bone pain, and/or enlargement of lymph nodes, liver, or spleen. Brain tumors may cause headache and vomiting, visual changes, or difficulty in

balance, coordination, or motor control. Other tumors may be visible and/or cause pain, malaise, weight loss, fever, or change in function based on the site of the tumor (Granowetter, 1994).

In addition to physical effects manifested by the disease, patients also experience effects from medical procedures involved in the diagnosis and treatment of cancer. Diagnostic studies, including bone marrow aspirate, biopsy procedures, lumbar puncture, X-rays, CT scans, magnetic resonance images (MRIs), and intravenous injection of radioactive material can be uncomfortable, painful, and distressing to the child (Granowetter, 1994). In treatment of the disease, chemotherapy and radiation result in destruction of cancer cells at the time of cell division (Armstrong, 2006); however, these treatment modalities do not discriminate between normal and abnormal cells. Thus treatments often cause suppression of the immune system, hair loss, nausea and vomiting (damage to GI system), change in taste/appetite, and fatigue (Armstrong, 2006). Treatment commonly causes low blood cell counts, gastrointestinal side effects and pain (American Cancer Society, 2014). Treatment may also result in limb amputation, possibility of sterility, and secondary cancers, as well as stunted growth, scoliosis, or hypothyroidism (Gotay, 1987; Granowetter, 1994; Meadows & Silber, 1985). Further, physical effects can include altered appearance (e.g., hair and limb loss, weight gain or loss, and short stature), blindness, ataxia, speech and language problems (Armstrong & Briery, 2004; Armstrong, Blumberg, & Toledano, 1999). While some of these physical effects are short-term (i.e. nausea related to chemotherapy treatment), others are long-lasting or permanent (i.e. amputation).

School reintegration. School reintegration can be difficult for children and adolescents who have been diagnosed with cancer, as these youth may experience problems with school functioning and performance, along with other psychosocial difficulties (Harris, 2009). Bessel

(2001) identifies research that indicates causes for school adjustment difficulties, such as increased absenteeism, changes in social interaction and development of school phobia. It may be difficult for children and adolescents to resume the role of a student after prolonged absences, physical and/or behavioral changes, and possible changes in social relationships or expectations. Further, physical effects, such as fatigue, hearing or vision loss, or physical limitations (i.e., limb amputation, paralysis), can impact the school experience (Katz & Madan-Swain, 2006). Additionally, pediatric cancer patients and survivors may exhibit more passivity and less initiative in the classroom, and may be more self-conscious or easily embarrassed than their peers (Deasy-Spinetta, 1981). They may also cry, worry, and complain more than healthy peers (Deasy-Spinetta, 1981).

School attendance is also an important issue in reintegration for children with cancer. Absenteeism is a problem for these youth, due to treatment, prolonged hospitalizations, fatigue, illness and/or risk of infection (Landier, 2013; Larcombe et al., 1990; Prevatt, Heffer, and Lowe, 2000; Upton & Eiser, 2006). In a review of the literature on school attendance for childhood cancer patients and survivors, Prevatt et al. (2000) reported that children miss an average of 40 days of school per year during treatment, and miss an average of 20 days yearly three years after treatment, when 50% of children are considered to be cured. Absenteeism rates are higher for children with cancer than for healthy controls or for children with other chronic illnesses (Charlton et al., 1991; Vance & Eiser, 2002). Prevatt et al. (2000) indicate that absenteeism is linked to poor academic outcomes and premature dropout rates. The impact of absenteeism can be exacerbated when children miss opportunities in the school environment for socialization, achievement of success, identification with society, independence, self-mastery, and esteem building. Further, Katz and Madan-Swain (2006) indicate that academic engagement allows for

normalization for the pediatric cancer patient, in the midst of the disruption that is caused by their illness, enhancing quality of life and providing hope for the future.

Moore, Kaffenberger, Goldberg, Oh, and Hudspeth (2009) examined differences in school attendance prior to diagnosis and after diagnosis, and found that there were significant differences between average days of school missed by children before diagnosis and each of the 3 years after diagnosis. Mean absences for children in this study pre-diagnosis was 3.52 days per year, first year post diagnosis was 82.5, second year post diagnosis was 57.98, and third year post diagnosis was 32.2 absences per year. However, results of their study did not indicate a significant relationship between academic performance and days absent, when academic performance was measured by parent perception of children's performance.

Behavioral and socio-emotional functioning. Diagnosis of childhood cancer and the ensuing treatment introduce a child and family to many emotionally difficult experiences, such as painful and frightening tests and procedures, anxiety-filled waiting periods for test results, unpleasant treatments, and time away from school, work, family and friends (Children's Oncology Group, 2013). As a result of the illness and effects of treatment, children and adolescents have reported a wide range of difficulties. These difficulties include coping with body image (i.e., related to hair loss, having to wear a hat to school, dealing with intrusive questions from peers, receiving unwanted attention (i.e., sympathy), and restricted social activity (Wallace, Harcourt, Rumsey, & Foot, 2007). However, reviews of the research investigating behavioral and socio-emotional functioning of pediatric cancer patients and survivors indicate mixed results (Noll et al., 1999; Vance & Eiser, 2002).

Sawyer, Antoniou, Toogood, and Rice (1997) conducted a study, using a prospective design, to investigate emotional and behavioral problems experienced by children with cancer,

aged 2-5 years, with assessments occurring immediately after diagnosis, 1 year after diagnosis, and 2 years after diagnosis. Participants included 38 children with diagnoses and 39 healthy peers from the community. Measures included the Child Behavior Checklist, completed by mothers to assess emotional and behavioral problems, the General Health Questionnaire to assess psychological adjustment of parents, and the General Functioning scale of the Family Assessment Device to assess psychological adjustment of families. Results indicated that immediately after diagnosis, children with cancer experience considerable emotional distress, reporting to be more anxious, dependent and tearful, and to experience more sleep disturbance than control participants. While internalizing scores were higher than control participants, they were lower than those reported for children attending mental health clinics, as measured during test development. During the year after diagnosis, the number of problems experienced by children and parents declined significantly, so that they did not differ significantly from those experienced by control peers.

Developmental differences preclude different outcomes depending on the stage of development of the pediatric cancer patient. Cancer in adolescents presents dual challenges of normal adolescent stressors combined with those related to the diagnosis and treatment of cancer (Decker, 2007). Ettinger and Heiney (1993) identified psychosocial concerns that have been addressed in the literature, including stressors related to pain and fear of invasive procedures, stress related to side effects (such as hair loss and restriction of activities), and loss of control. In consideration of the normal adolescent task of increasing independence, parental overprotectiveness was identified as a source of frustration for adolescent cancer patients, with additional stress resulting from a belief in the need to remain strong for parents. Peer relationships and social isolation is also consistently identified in the literature as a major

concern for adolescents with cancer, including feelings of loneliness and concerns about peer reactions (i.e., ignoring, ridiculing, or being treated differently; Ettinger & Heiney, 1993; McCaffrey, 2006; Prevatt et al., 2000). Social support from peers, however, is associated with positive psychological adjustment; including indication that peer acceptance is correlated with patients' return to school (Varni, Katz, Colegrove, & Dolgin, 1994). Additional developmental considerations are also significant for adolescents who encounter restrictions of independence, increased dependence on medical professionals and parents, loss of privacy, disruption in routines, and issues of mortality (McKnight, 2005).

Late Effects

Definition of late effects. In addition to the immediate effects of cancer diagnosis and treatment, late effects must also be considered. Late effects include a wide range of adverse effects that can occur after treatment for cancer ends (Eiser, 2007). These effects may have a negative impact on the survivor's physical, cognitive/academic, and/or psychosocial development and well-being. The onset of late effects varies, as they may be continued from the course of treatment or may arise months or years after treatment ends. Neglia and Nesbit (1993) categorized these late sequelae into the following categories: early (under five years since treatment), intermediate (five to 20 years), and very late (20 or more years). The impact of late effects also varies for cancer survivors, ranging from minor to severe, depending on cancer type, location of tumors, treatment modality, age at diagnosis, and gender (Eiser, 2007).

Physical effects. Late physical effects may include damage to virtually any organ and system of the body, such as heart, lung, gastrointestinal tract, urinary tract, liver, spleen, eyes, and musculoskeletal, nervous, and reproductive systems (Gotay, 1987; Meadows & Silber, 1985; National Cancer Institute, 2006). Visual, auditory, and dental problems may emerge, as well

(Granowetter, 1994; Meadows & Silber, 1985). Immuno-suppression and amputation may also be late effects. Growth and development may be affected, as well as sexual maturation (Gotay, 1987; Mulhern, Ochs et al., 1989). It is possible that children of the pediatric cancer survivor may also be affected (Gotay, 1987). Secondary cancers are also a concern, with risk of second malignancy estimated at 10-20 times that of the general population who has not received a cancer diagnosis (Gotay, 1987). Additional late effects of treatment may also include scoliosis, or curvature of the spine, and hypothyroidism (Gotay, 1987; Meadows & Silber, 1985).

Neurocognitive and academic issues. Landier (2013) identifies multiple factors that can increase risk of late effects in this domain. These include diagnosis at a very young age, prolonged absences, prior history of learning problems, and/or cancer treatments that result in reduced energy levels, impaired hearing or vision, or physical disabilities. Certain types of cancer may also increase the likelihood of developing educational difficulties (i.e., brain tumors, tumors involving an eye or ear, ALL, and NHL). Treatments that place youth at higher risk include high doses of Methotrexate, intravenously administered Cytarabine, brain surgery, Cisplatin or Carboplatin, and radiation to the brain, ear/infratemporal region, or total body.

Neurocognitive effects. Neurocognitive effects are most commonly a result of treatment for cancers that require CNS-directed therapies, such as cranial irradiation and/or CNS chemotherapy (Butler & Haser, 2006; National Cancer Institute, 2006). Children with CNS tumors (i.e., medulloblastoma), head and neck sarcomas, and ALL are most commonly affected (National Cancer Institute, 2006), as treatment for these types of cancer is intensive, and often includes both CNS chemotherapy and/or CRT (Butler & Haser, 2006). These treatments have been found to lead to neurologic sequelae such as injury to brain tissues - especially calcifications, seizures, and changes to cerebral white matter, in which there is disruption in the

growth and development of the myelin sheath of the frontal cortex and connections between the frontal cortex and basal ganglia (Armstrong & Mulhern, 1999; Peterson & Drotar, 2006). Research has found that the combination of these treatments is associated with greater deficits in neurocognitive functioning and academic difficulties for childhood cancer survivors (Anderson, Godber, Smibert, Weiskop, & Ekert, 2004; Raymond-Speden, Tripp, Lawrence, & Holdaway, 2000). The most commonly found declines have been in performance-based skills (versus verbal skills or global intelligence), such as attention, processing speed, visual-spatial and fine motor skills, executive functions, math/sequencing ability, and social and behavioral adjustment (Armstrong & Briery, 2004; Mulhern, 1994; Peterson & Drotar, 2006).

The specific impact of a brain insult, and resulting neurological and cognitive effects, appears to be associated with several risk factors, including: location and invasiveness of CNS tumors, complications of neurosurgery, dose and location of radiation, combined treatments, the need for shunting because of hydrocephalus, disease relapse requiring additional treatment, age of child at treatment, age of child at assessment, and duration of time between treatment and assessment (Armstrong & Briery, 2004; Armstrong, Blumberg, & Toedano, 1999; Peterson & Drotar, 2006). Younger children (i.e., those receiving treatment under the age of four years) are at greater risk for more severe and more global cognitive effects (Armstrong & Briery, 2004; Peterson & Drotar, 2006). Further, delays in academic functioning may not be seen until years later, with the greatest level of cognitive impairment not detected until at least three years post-treatment (Armstrong & Mulhern, 1999; Bessell, 2001). Thus, as late effects emerge over time, a child who has been treated at age 4 is likely to demonstrate significantly more areas of difficulty when assessed at age 12 than when assessed at age 6 years (Armstrong & Briery, 2004).

In their review of the research on neurocognitive effects, Butler and Haser (2006) found that earlier studies (prior to 1995) provided conflicting results as to whether or not cognitive effects existed. Early studies generally used comprehensive neuropsychological test batteries, and conflicting results may have been due to reduced sample sizes, variance in participant ages, and variance in treatment approaches (Butler & Haser, 2006). However, commonalities that emerged from these early studies included risk factors for greater impairment (i.e., younger age at diagnosis and being female) and recognition of more common deficits (i.e., memory, attention/concentration, sequencing, processing speed, visual perceptual ability and language).

Academic outcomes. Neurocognitive effects are likely to result in educational problems, such as reading and math difficulties (Peckham, Meadows, Bartel, and Marrero, 1988). These difficulties, when they are present among pediatric cancer patients and survivors, may also be the result of increased absenteeism, changes in social interactions, and/or school phobias (Bessell, 2001). Declines in grades have also been demonstrated to be commensurate with late cognitive effects when children with brain tumors were compared to a control group (Lähteenmäki, Harila-Saari, Pukkala, Kyyrönen, Salmi, & Sankila, 2007). It has been estimated that as many as 50% of childhood cancer survivors may be at risk for learning difficulties (Peterson & Drotar, 2006), and a higher percentage of childhood cancer survivors receive special education services (23%) than sibling controls (8%) (Mitby et al. 2003). In a study that included 59 long term survivors of pediatric cancer, Kazak, Crhistakis, Alderfer, and Coiro (1994) found that adolescent cancer survivors who received special education services rated themselves lower across several aspects of self-perception, had higher levels of anxiety and were perceived as having more behavioral difficulties by their parents.

Brown et al. (1998) examined cognitive and academic late effects of treatment for 47 children and adolescent survivors of ALL. Demographic data indicated that 36.2% of the participants were receiving part-time special education services, 6.9% were in self-contained special education classrooms, and 23.4% had repeated a grade. Other studies have indicated that pediatric cancer survivors are at risk for retention (Bessell, 2001; Lähteenmäki et al., 2007). With data collected from 51 pediatric cancer survivors, 8-17 years old, Bessel (2001) found that 30% of participants had been retained, compared to the national retention rate of approximately 11% at the time.

Mitby et al. (2003) investigated the utilization of special education services and level of educational attainment of 12,340 survivors of childhood cancer as compared to 3,410 sibling controls. Results of the research indicated that 23% of survivors reported they utilized special education services at some point during their education, whereas 8% of siblings indicated utilization of these services. Greater likelihood of receiving services was significantly associated with younger age at diagnosis (i.e., before 6 years of age), female gender, and receiving intrathecal methotrexate and/or cranial radiation treatment. Younger age at diagnosis and higher doses of cranial radiation were also associated with longer period of utilization of special education programs. Survivors self-reported that absenteeism and low test scores were reasons for placement in special education. In regard to high school completion, survivors of leukemia, CNS tumors, non-Hodgkin lymphoma, and neuroblastoma were found to be significantly less likely to complete high school when compared with siblings. However, receiving special education services appeared to moderate risk for high school completion, so that those survivors who received services approximated risk estimates of sibling controls.

In studies of academic performance, childhood cancer survivors have been found to have difficulties in math and reading. In a study conducted by Peckham, Meadows, Bartel, and Marrero (1988), pre-treatment standardized achievement test scores of ALL survivors who had been treated with cranial irradiation, intrathecal methotrexate and standard chemotherapeutic agents were compared to scores eight to ten years post-treatment. Results indicated that these children achieved less than expected levels in reading and math performance. In a comparison of ALL survivors and healthy controls, math difficulties were also found by Kaemingk, Carey, Moore, Herzer, and Hutter (2004). Study participants had been treated with systemic and intrathecal chemotherapy 3.9 – 11.7 years prior to the study. Literacy and numeracy were also identified as the most common learning difficulties among children treated for brain tumors in a study conducted by Upton and Eiser (2006).

Armstrong et al. (1999) suggest that one problem associated with learning outcomes is the traditional process for identifying learning disabilities. The authors proposed that the traditional discrepancy model for identifying learning disability (i.e., >15 standard score points difference between verbal/nonverbal scores or between intellectual functioning and academic achievement) does not identify learning difficulties in the cancer survivor early enough, as these problems do not tend to emerge for several years after treatment has been discontinued. Thus, waiting for this discrepancy standard to be reached, after a gradual decline in abilities, may result in an experience of significant failure and missing the optimal period for problem identification and intervention. Rather than waiting for these students to experience failure, it is crucial to monitor survivors' performance and academic progress in order to prevent failure by implementing targeted educational interventions as specific difficulties may arise. Using

Armstrong et al.'s (1999) developmental model, they suggest, may help to prevent and alleviate long-term cognitive and academic problems.

Behavioral and socio-emotional functioning. The behavioral and socio-emotional functioning of pediatric cancer survivors may also be impacted, with possible late effects of lower self-worth, greater social anxiety, and more negative body image perceptions (Pendley, Dahlquist, & Dreyer, 1997). Further, more severe medical late effects and greater functional impairments have been associated with poorer self-concept, greater distress, more insecure relationships, and more academic and adjustment problems (Marsland, Ewing, & Thompson, 2006).

However, research generally reports these children adjust well, with small percentages having difficulties that reach pathological levels (Patenaude & Kupst, 2005; Phipps, 2005; Rourke & Kazak, 2005). Rates of depression, behavioral disorders, social anxiety, loneliness, body image concerns, and other general psychological symptoms have been comparable to rates of children who have never had cancer (Rourke & Kazak, 2005). Some research even indicates fewer emotional and behavior problems, based on the reports of teachers, when compared to peers (Patenaude & Kupst, 2005). Research has, however, indicated relatively high levels of global psychological distress among young adult survivors and elevated levels of Posttraumatic Stress Symptoms (PTSS) and Posttraumatic Stress Disorder (PTSD) in cancer survivors (Rourke & Kazak, 2005). While rates of PTSD in adolescent cancer survivors are generally comparable to non-ill peers, most survivors report at least some symptoms of PTSD (Rourke & Kazak, 2005). Additionally, there is consistently a small but significant subgroup of an estimated 25-30% of cancer survivors who do not cope well or who have significant difficulties (i.e., with social relationships, self-esteem; Patenaude & Kupst, 2005).

Bessel (2001) investigated psychosocial adjustment, quality of life, and education experiences of 51 pediatric cancer survivors, using a multimethod, multisource approach, including quantitative and qualitative methods. Age range of the participants was 8 - 17 years, with a mean age at diagnosis of 7.28 years, and mean time since treatment of 3.59 years. The researcher used three assessments (The Social Anxiety Scale for Children-Revised, The Self-Perception Profile for Children and The Self-Perception Profile for Adolescents, and the Miami Pediatric Quality of Life Questionnaire) to assess psychosocial adjustment and quality of life. Additionally, the author developed and used The School Experience Interview, a semi-structured interview constructed to rate and record open-ended responses given by students concerning their school experiences. Within this interview four independent variables were created: grade level in school, retention history, school placement following treatment (exceptional student education, gifted/honors, or general education), and school program during treatment (homebound, general school-based education, or not school-aged). The author included these variables due to indication in the literature regarding concerns that these affect psychosocial adjustment, quality of life, and school experiences. Five categories were also generated to be rated as good, average, or poor: helpfulness and understanding of teachers, academic performance, peer interaction and acceptance, attitude toward homebound instruction, and attitude toward school and school-based instruction after diagnosis.

Results of the study, in general, reflected that children and adolescent cancer survivors report psychosocial adjustment similar to peers in the general population. Some indices even indicated significantly more positive results. For example, in regard to self-perception, participants reported higher global self-worth and higher behavioral conduct than test norms. There is an indication however, that some negative effects go beyond the physical issues related

to cancer, and can linger after treatment and may not be detected using standardized assessments. For example, 42% of participants indicated general psychological distress, poor peer acceptance issues, and some self-perception problems. Retention rate for participants was 30%, compared to the national retention rate of 11% at the time of the study. Additionally, the authors reported that participants' academic performance, self-concept, attitude toward school, and social development were similar to those among students identified with learning disabilities. Further, the study found disproportionately high special education placement (>27%), which participants considered yet another way that they were identified as being "different," as well as a barrier to social and academic opportunities.

Some research also indicates an effect such as illness-related complications in identity formation during adolescence (Gavaghan & Roach, 1987; Hauser et al., 1992). Madan-Swain et al. (2000) investigated identity formation of adolescent survivors of adolescent cancer, comparing survivors (n = 52) to a healthy comparison group (n = 42), and examining the potential influence of emotional support from family and peers, life stress, and anxiety produced by their experience with cancer. Results of the study indicated that, while there was an age-dependent progression of identity development for both groups (survivors and healthy controls), there was a greater frequency of survivors (n = 19) in the foreclosed status than healthy controls (n = 7). Further, results indicated that specific variables were correlated with greater foreclosure scores. These variables included: family ratings of more conflict (by survivor and/or parent), longer length of time off therapy, age off therapy, greater severity of disease, and length of treatment. The authors conclude that survivors may be more reluctant to risk exploration of alternative value systems than healthy peers, foreclosing on options for various reasons (i.e.,

limited cognitive and physical functioning or realities of their treatment outcomes), to avoid the uncertainty and ambiguity of exploring future choices.

The Children's Oncology Group (2013) has identified risk factors that may affect the development of anxiety, depression, and/or symptoms of posttraumatic stress. These include female gender, adolescent/young adult age, prior trauma, prior mental health or learning problems, limited social support, parental history of anxiety, depression or PTSD, CNS involvement (cancer and/or treatment to this region), or bone marrow or stem cell transplant.

Studies have also been conducted to examine predictors of psychosocial functioning. Stuber and Seacord (2004) have identified some of these predictors in the literature. For example, sociodemographic factors that have been associated with at least one adverse health status domain (e.g., general health, mental health, anxiety/fears) are: female gender, lower level of educational attainment, and annual income less than $20,000 (Hudson et al., 2003). Predictors of mood disturbance are: younger age at diagnosis (under 12. 5 years), negative perception of current health, perception that cancer had a negative impact on employment, and status as non-white male (Stuber & Seacord, 2004). High dose cranial irradiation and intrathecal methotrexate were also significantly correlated with mood disturbance. In regard to PTS symptoms, subjective appraisal of life threat and perceived intensity of treatment, greater levels of general anxiety, a history of other stressful experiences, more recent termination of treatment, female gender, and less family/social support have been found to predict symptomology (Stuber et al., 1997). Zebrack et al. (2002) also report research outcomes that predict more negative psychosocial outcomes for survivors who have experienced more intense treatments, who have more serious or visible after-effects, and who are of lower SES. However, they also indicate conflicting results in regard to predictors of psychosocial outcomes, with some research results

reporting more negative outcomes for survivors who are male, female, diagnosed at a younger age, or diagnosed at an older age.

These authors collected and analyzed self-report data as a subset of the Childhood Cancer Survivor Study (CCSS), which collected data on 20,304 individuals who were treated for pediatric cancer at one of 25 centers in the United States or Canada. Of those individuals, 5736 were included in the current study as they met criteria for diagnosis with leukemia and lymphoma. Additionally, the study included 2565 sibling controls. The researchers assessed symptoms associated with depression and somatic distress, using long-term follow-up questionnaires, and collected data to examine potential predictors of symptomatic levels of depression or somatic distress. Consistent with other research, most participants did not demonstrate symptomology, but survivors were significantly more likely than controls to report symptoms. Additionally, female gender and lower SES in both groups were significantly more likely to predict symptomology. Being a cancer survivor did not compound this effect. Exposure to intensive chemotherapy was the only treatment variable studied to predict scores indicating depressive or somatic distress symptoms. Variables which were not significantly associated with symptomology in this study included diagnostic category, age at diagnosis, time since diagnosis, or duration of treatment.

Sharp, Rowe, Russell, Long and Phipps (2015) examined psychological functioning in children diagnosed with cancer, with regard to depression, anxiety and PTSS, compared to healthy peers. Additionally, they examined factors (i.e., dispositional traits and stressful life events) that might predict psychological functioning. The study included 255 youth between 8 and 17 years of age who had been diagnosed with cancer, and 101 children in a healthy comparison group. Predictor variables included the Life Events Scale which assesses a history

of 30 stressful life events, youth Life Orientation Test which measures dispositional optimism, and the Child and Adolescent Five-factor Inventory which provides scale scores for neuroticism, extraversion, openness, agreeableness, and conscientiousness. Outcome variables included the Children's Depression Inventory, the Screen for Child Anxiety Related Emotional Disorders, and University of California at Los Angeles Posttraumatic Stress Disorder Reaction Index for DSM-IV. Results of the study indicated that there was not a statistically significant difference between children with cancer and healthy peers on measures of depression or PTSS. A significant difference was found between groups on the measure of anxiety, with children diagnosed with cancer reporting fewer symptoms of anxiety.

Significant results from this study were also reported regarding predictors of psychological functioning. In regard to demographic variables, gender and age accounted for significant variance in predicting anxiety and PTSS, with girls and younger children reporting more symptoms of anxiety, and children of lower SES reporting higher anxiety and PTSS. Number of stressful life events was significant, with more stressful life events predicting poorer psychological functioning across all three outcome variables. The authors reported that dispositional factors accounted for the largest portion of variance across all outcome variables. Optimism was associated with fewer symptoms of anxiety, depression and PTSS, while neuroticism predicted a greater number of symptoms on each of these outcome variables. Extraversion was inversely related to depression and anxiety. Greater openness and conscientiousness predicted lower levels of depression.

Another recent study examined connectedness as a predictor of outcome variables (benefit-finding and PTSS). The study included 153 youth, ages 8 – 19 years, with a history of cancer, and 101 youth without a history of serious illness (Sharp et al., 2015). Children with a

history of cancer were 18 months to >6 years post-diagnosis, with most having completed treatment. Results supported previous findings in regard to children with a history of cancer not differing significantly from healthy peers on the outcome variables.

Regarding connectedness, four distinct groups were identified: "High Connectedness," characterized by high levels of connectedness across all indicators (neighborhood, friends, parents, siblings, school, peers, and teachers), "Low Connectedness," characterized by low levels of connectedness across all indicators, "Connectedness to Parents," primarily connected to parents, and "Connectedness to Peers," characterized by high connectedness to friends. Children in the High Connectedness group reported the lowest levels of PTSS and highest levels of benefit-finding. Connectedness to Parents and Connectedness to Peers groups did not differ significantly from each other and were moderately correlated with PTSS and benefit-finding. Children in the Low Connectedness group had significantly higher levels of PTSS and significantly lower levels of benefit-finding. The authors concluded that connectedness could promote resilience and growth in youth who have a history of cancer as well as their healthy peers.

Family Systems

With evidence of the physical, neurocognitive, and psychosocial effects of pediatric cancer, there is also evidence of reciprocal influences across biopsychosocial realms. Bronfenbrenner's social ecology theory (Bronfenbrenner, 1979; Berk, 2003; Ormrod, 2008) provides a framework in which the reciprocal influences among family members experiencing pediatric cancer can be examined. This theory depicts the child's development within the context of a nested arrangement of systems (microsystem, mesosystem, exosystem, macrosystem, and chronosystem). A key feature of this model is the fluid back and forth (bi-

directional) interactions among the systems and how they influence one another. As the child grows, the child actively restructures the multiple environments in which he or she functions, and at the same time the child is influenced by these settings, the inter-relationships among them, and the external influences from the larger environment. The medical condition is considered a microsystem in the social ecology, which would include effects of the illness and treatment. Thus, chronic illness can have deleterious effects on the child's development, as well as on other microsystems (i.e. the family). In turn, there are family microsystem factors (i.e. single-parent families, young (minor) parents, low levels of social support, financial difficulties, parental psychopathology) which can predict psychosocial difficulties in the child (Kazak, 2006). Further, Alderfer and Kazak (2006) indicate that families do not respond solely to the illness, but interact with it over time, which is an example of chronosystems within Bronfenbrenner's social ecology theory.

More recently, Kazak (2006) has used a biopsychosocial framework to develop the Pediatric Psychosocial Preventative Health Model (PPPHM) to conceptualize how families of chronically ill children might be provided with support to meet their individual levels of need. This 3-tiered model identifies families of varying levels of need (Kazak, 2006). Most families are categorized at the Universal level, and include those who are normally functioning but are experiencing distress related to the child's illness. In general, these families are resilient and have, at least, adequate coping abilities. A smaller subset of families, Targeted, are at elevated risk for psychosocial difficulties, due to factors that predispose them to such difficulties (i.e. preexisting child problems, poverty, family conflict). The smallest subset of families is in the Clinical/Treatment category, and present with more evident symptomatology and risk factors for

ongoing distress (i.e. elevated/persistent anxiety, depressive symptoms, comorbid child and family psychosocial problems).

Other medical models also reflect the bidirectional influences of social ecology theory. Engel (1977) proposed that a biomedical model of disease is inadequate for explaining the many factors that interact to culminate in disease or manifest illness. He suggested that this model relies solely on measurable biological variables, and does not include social, psychological, and behavioral dimensions of illness. Thus, he proposed a more inclusive model, which acknowledges the genetic and environmental influences that operate in the development of both somatic and mental diseases. He emphasized the importance of such a holistic approach in examining the human experience of illness by acknowledging experiential factors and their interactions with biological factors in the prevention, development, and outcomes of illness. Engel supported the need for such a model by pointing out the psychological, social, and cultural factors, and their interaction with biological factors, in determining: 1) how illness is experienced and reported, 2) when it is reported, 3) susceptibility to illness, 4) onset, severity and course of disease, 5) whether or not an individual seeks assistance in the health care system, and 6) the relationship between patient and doctor and thus the physician's influence in modifying patient behavior. The biopsychosocial model allows for the importance of biomedical influence while taking into account a systems perspective that includes the patient, social context, and the health care system (i.e., physician), recognizing that all levels of systems are linked so that any change in one affects the others within that system. Engel's biopsychosocial model emphasizes the importance of the interaction of psychological, social, cultural and biological factors, and provides a framework for research, teaching, and intervention.

Also emphasizing the importance of a holistic approach to medicine, but focusing mainly on the family system within a systems model, Wood (1994) proposed a Biobehavioral Family Model (BBFM); identifying developments in psychoneuroimmunology and behavioral medicine which indicate that social, psychological and physiological processes modulate each other in health and in illness. She further suggested that the immediacy and influence of family for the individual provokes consideration of family interactions as psychophysiological mediators of stress. The BBFM proposes that family systems properties (i.e., proximity, generational hierarchy, triangulation, parental relationship and interpersonal responsivity) influence each other and interact with individual biobehavioral reactivity (the intensity of physiological, emotional and behavioral response to stimuli) to buffer or activate psychobiological processes related to disease.

In summary, these models emphasize the multi-directional influences between the chronically ill child, individuals in the child's immediate and more distant environment, and various other factors (i.e., culture, social, psychological, biological) within the systems that surround the child. By recognizing the reciprocal influences in these models, it becomes possible to treat the child with cancer with a more holistic approach, rather than solely from a biomedical framework. It is suggested that this holistic approach is likely to produce more positive outcomes for the child and systems (i.e., family, medical condition, medical staff) involved.

Impact of Pediatric Cancer on the Family

Supporting one aspect of these models, research validates the impact that pediatric cancer can have on the family. As the incidence of pediatric cancer has risen, so naturally have the numbers of families who are impacted. The impact of cancer on the family can be examined

within the chronosystem as a function of time. A common theme in the research on family response, according to Alderfer and Kazak (2006), is that families initially tend to respond to the illness diagnosis by pulling together, increasing cohesion, and experiencing a centripetal force which weakens the family's internal boundaries in order to allow for more effective teamwork.

Families have significant challenges to their functioning as they move from the initial diagnosis into treatment. During this time, families may need to renegotiate roles and responsibilities to care for the child and partake in medical routines and responsibilities (Alderfer, Navsaria, & Kazak, 2009). Alderfer et al. (2009) reviewed the research on family adjustment and reported strain and disorganization, with more potential for falling into chaotic and rigid ranges of flexibility, as a result of the time and physical demands associated with treatment. Post-treatment, however, families become better functioning than those who are on treatment (Alderfer et al. 2009; Alderfer & Kazak, 2006). While this improvement occurs with time, research exists indicating that families post-treatment may still be more enmeshed than those who have never experienced pediatric cancer (Alderfer & Kazak, 2006). Such differences across time are not apparent in all family impact research, as indicated in a study conducted by Sawyer, Antoniou, Toogood, and Rice (1997). These authors reported no significant differences between families of children with cancer and a control group from community immediately after diagnosis, 1 year after diagnosis, or 2 years post-diagnosis on psychological adjustment as assessed by the General Functioning Scale of the Family Assessment Device.

Less positive results for families affected by cancer were found by Alderfer, Navsaria, and Kazak (2009) who presented evidence of problems of poor family functioning in this population. In their study, 47% of adolescents, 25% of mothers, and 30% of fathers reported poor family functioning, exceeding clinical cutoff scores for four or more Family Assessment

Device (FAD) subscores. Additionally, 36% of families exceeded established cutoff scores indicating a problem for four or more subscales, signifying overall poor family functioning. This percentage is greater than reports of community samples, in which less than 10% typically endorse poor functioning in this number of subscales. Morris, Blount, Cohen, Frank, Madan-Swain and Brown, (1997) also examined family functioning and behavioral adjustment in children with leukemia compared to healthy peers. Results of this study indicated that families of healthy children rated themselves as more cohesive and less conflictual than families of children with cancer. The authors of this study conceptualized families as dynamic systems whose members are constantly interacting, adapting, and changing through the cancer trajectory (from the time of diagnosis, during treatment, and post-treatment).

This conceptualization of families has been supported in other literature. Research has shown that the cancer experience can have a psychological impact on the entire family and its individual members (Grootenhuis & Last, 1997; Kazak et al., 2004; Patterson, Holm, & Gurney, 2003; Sloper, 2000). Families battling cancer have been found to undergo significant challenges and changes within the family system (McGrath, 2001). For example, families have been shown to adjust family roles, modify/suspend typical family activities, relocate for treatment, and experience disruption in daily functioning (Björk, Wiebe, & Hallström, 2005; McGrath, 2001; Vannatta & Gerhardt, 2003). Numerous stressors and strains to the family may also result, including balancing family needs (e.g., work, child care, and hospital appointments), strained relationships between parents and children, marital conflict, impaired relationships with extended family members, and financial worries (Patterson, Holm, & Gurney, 2003).

As indicated, there are conflicting results in the literature regarding the impact of cancer on families. While some studies indicate more problems with cohesion and conflict among

families who are dealing with pediatric cancer (Morris et al., 1997; Rait et al., 1992), other evidence indicates that families of children with cancer do not present with such detrimental effects (Grootenhuis & Last, 1997; Vannatta & Gerhardt, 2003; Wallander & Varni, 1998), and that they are similar to families who are not dealing with a pediatric chronic illness on factors of family impact (Kazak, Christakis, Alderfer, & Coiro, 1994; Madan-Swain, Sexson, Brown & Ragab, 1993; Pelcovitz et al., 1998; Sawyer, Antoniou, Toogood, & Rice, 1997). In a review of the literature, Kazak, Cant, et al. (2003) surmise that there are small subsets of families that experience more severe difficulties in adjustment, with these disruptions continuing over time, but that families with chronically ill children tend to look much like families unaffected by pediatric cancer in terms of family functioning and outcome.

Qualitative research on family impact provides further insight into the nature of this impact, presenting evidence for both negative and positive results for families. In a qualitative study of the impact of treatment for childhood ALL on families, McGrath (2001) found a repeated theme among families who expressed the importance of maintaining normalcy and stability, but found this challenging due to treatment demands (i.e. necessity of relocation, interruptions to work and school, and disruptions to family life). This sense of normalcy was also relayed in a qualitative study conducted by Patterson, Holm, and Gurney (2004), in which 22.2% of parents discussed the loss of normal family life. Families discussed how cancer invaded all aspects of their lives, as though they were in a different world, a surreal experience of being suspended in time and space.

In an earlier qualitative study conducted by Koch (1985), which interviewed siblings and parents of pediatric cancer patients, five themes of family reaction to pediatric cancer were identified. These themes included increased negative affect, rules prohibiting emotional

expression, health and behavior problems, role changes, and increased closeness. Increased negative affect included worry about the child dying and sorrow about the impact of cancer on the child, with family members expressing their wish to have the child's pain in his/her place. Emotional expression, particularly worry and anger, was identified by the authors as being prohibited when families appeared to engage in repression or denial. A third family pattern emerged indicating an exacerbation or appearance of physical and emotional symptoms, accidents, injuries, and acting out behaviors that occurred in family members following a child's diagnosis. Specifically, these health and behavior problems included alcoholism, extramarital affairs, exacerbation of kidney stones and back problems, attempted suicide, gallstones, allergic reactions, miscarriages, hepatitis, knee injuries, emotional symptoms, psychiatric care, fighting/disruptive behavior at school, and death resulting from a car accident. Role changes that were identified included focusing attention and priority on the patient, emotional caretaking, and speeded maturation in siblings. On a more positive note, families in this study also identified increased level of functioning and strengthening of family cohesiveness following the cancer diagnosis.

Although research indicates that siblings exhibit positive adjustment overall (Labay & Walco, 2004; Madan-Swain et al., 1993; Madan-Swain et al., 2003), some exceptions have included decreased social competence (less involvement and success in academic, extracurricular, and social activities; Labay & Walco, 2004), and parent reports of sibling expression of anger, resentment or jealousy, sibling sense of being over-responsible for self and siblings (Patterson et al., 2004), and parent concerns of siblings being required to mature faster, losing their childhood (Sidhu, Passmore, & Baker, 2005).

Risk and resiliency factors have been identified which are associated with level of sibling adjustment. Risk factors for sibling adjustment have been identified as age (older siblings having more adjustment problems), gender (female siblings having more adjustment problems), unfavorable course of disease, and number of days the sibling with cancer has spent in the hospital (Houtzager et al., 2004). High family adaptability (i.e., more adaptable families) has also been associated with poorer adjustment in siblings, suggesting that long term adaptability may be "chaotic" for siblings, requiring too much flexibility, little security, and a lack of stability and support (Houtzager et al. 2004). Alderfer and Kazak (2006) also cite research indicating that emotional reactions of parents and their adjustment to cancer (e.g., maternal depression) may affect siblings more than the illness has an effect.

Resilience factors are also identified which are associated with greater sibling adjustment. While age (older siblings) was associated with some adjustment difficulties in siblings, with age being positively associated with endorsing frequency and efficacy of coping strategies (Madan-Swain et al., 1993). Alderfer and Kazak (2006) report that family factors (e.g., greater cohesion, adaptability, expressiveness, and less conflict) are related to fewer internalizing and externalizing behavior problems in siblings. Greater empathy and ability to remain optimistic have also been associated with fewer difficulties in adjustment (i.e., lower anxiety, insecurity, loneliness, and illness involvement (Houtzager et al., 2004; Labay & Walco, 2005). Finally, positive attributions for good events are also associated with increased number of siblings, indicating better adjustment for siblings in larger families (Madan-Swain et al., 1993).

Impact of Pediatric Cancer on Parents

In addition to examining the impact of pediatric cancer on overall family functioning, some research has focused more specifically on the impact of cancer on parents. For the

purposes of this study, the remainder of this discussion of the impact of illness on the family will focus on parents. A review of the literature provides evidence that the pediatric cancer experience may affect parents' relationship and roles, parents' view of their relationship with their children, and parents' psychosocial functioning. It is also evident that there are risk and resiliency factors associated with how parents are affected, that effects on parents may change over time (i.e. decrease in strength post-treatment), and that some parents also identify positive changes (i.e. strengthened family bond) as a result of the illness experience.

Parental relationship and roles. Changes in marital relationships and parenting roles, when a child has been diagnosed with cancer, have been identified as sources of distress in multiple studies. In a qualitative study of the impact of treatment for childhood ALL on families, for example, all participants spoke of the impact the illness experience had on the parental relationship (McGrath, 2001). In this study, parents discussed the role changes and conflicts that affect them, such as the need for one parent to remain in the hospital while the other was responsible for making decisions at home, and having to relinquish part of the role of parent to healthy siblings while increasing responsibilities with the sick child. In a study conducted by Patterson, Holm, and Gurney (2004), conflict was also discussed, with 17.8% of couples reporting conflict as a result of their experience with children's illness. These parents indicated differing coping styles and having to re-learn how to work together as their main sources of conflict. Additional strains to the parental relationship have been identified as difficulty with open communication due to the demands of the illness and having to communicate by telephone when geographic separation was required (McGrath, 2001). Fathers specifically identify having to adjust to increased responsibilities in child caretaking and home responsibilities (i.e., household chores) as sources of difficulty (Brody & Simmons, 2007; McGrath, 2001).

Parents' relationship with children. In addition to experiencing changes in the marital relationship, parents of children with cancer describe the impact the illness has on their relationship with their children. For example, fathers have reported changes in their own personality and parenting styles as a result of the cancer experience, to include being more lenient, more supportive, and/or more understanding, as well as spending more time with their children (Brody & Simmons, 2007).

In a study conducted by Patterson, Holm, and Gurney (2004), 40% of parents reported strains on their relationship with their child with cancer. Sub-themes identified included becoming over-protective, having conflict about the child's independence, telling the child his/her diagnosis, and having conflict over taking medications.

Additionally, parents have reported feeling guilty about devoting substantial attention to the ill child, while neglecting siblings (McGrath, 2001). Sidhu, Passmore, and Baker (2005) investigated parents' perceptions of the impact of cancer on their parenting of healthy siblings. Parents expressed guilt for being less available for the healthy sibling, indicating the difficulty in trying to meet the needs of all family members. Parents also reported having other family members care for healthy siblings, due to the demands and hectic schedules centered on the ill child.

Psychosocial functioning. In reviewing the research on psychosocial effects of children's chronic physical disorders on parents, Wallander and Varnie (1998) found that events that occur during childhood illness that can impact parents include those that are directly related to the child's illness (i.e., hospitalization) or indirectly related (i.e., loss of a job). Parental impact was investigated by Patterson, Holm, and Gurney (2004) in a qualitative study involving parents of children a year or more after completion of cancer treatment. This study examined the

impact of childhood cancer on families, focusing on families' strains, resources, and coping behaviors. Results of this study identified parents' difficulty with witnessing their child's experience as a significant strain during the course of treatment. Five subthemes of parental reaction to the illness were found: 1) feeling numb, devastated, and overwhelmed, 2) a sense of helplessness and loss of control, 3) fear that their child would die, 4) grief over their child's pain and losses, and 5) sense of guilt and self-blame. Similar reactions were reported by fathers in a study conducted by Brody and Simmons (2007). These fathers also reported feeling mentally and emotionally drained as a result of 1) feeling unsure that they had all the information needed about their child's illness, 2) fear of relapse, and 3) struggling to maintain the positive attitude while witnessing their child's suffering.

Given these reactions to the pediatric cancer experience, it is not surprising that researchers have found that parents of children with cancer report more anxiety (Gerhardt et al., 2007; Larson, Wittrock, & Sandgren, 1994; Sawyer, Antoniou, Toogood, Rice, & Baghurst, 1993), depression (Barrera, D'Agostino, Gibson, Gilbert, Weksberg, & Malkin, 2004; Sawyer et al., 1993), posttraumatic stress symptoms (Barakat et al., 1997; Kazak et al., 1997; Phipps, Long, Hudson, & Rai, 2005), distress (Sloper, 2000; Steele, Dreyer, & Phipps, 2004) and somatic complaints (Sawyer et al., 1993) than parents of children without a chronic illness. As might be expected, these indications of adjustment difficulties may be less evident later in the treatment process (i.e., one year after diagnosis; Sawyer et al., 1993), and post-treatment (Phipps et al., 2005).

Much of the recent research on parental psychosocial adjustment has focused on PTSS and PTSD. Phipps et al. (2015) examined adjustment in parents of children with cancer as compared to parents of healthy children, using diagnostic interviews for PTSD and measures of

PTSS, as well as measures of psychological growth and global psychological functioning. In this study, participants included 309 parents of children age 3-17 years who had been diagnosed with cancer and 231 comparison parents of healthy children. Results indicated that rates of current PTSD (1.6%) and lifetime PTSD (7.3%) in parents of children with cancer were not significantly different than those of the comparison parents (.9 % current, 9.5% lifetime). Nor were there elevated levels of PTSS compared to parents in the comparison group. On measures of personal growth, however, parents of children with cancer did demonstrate a significant difference from comparison group parents, with parents of children with cancer reporting greater personal growth. Further the two groups did not differ significantly on measures of global adjustment. The absence of significant differences between groups on measures of PTSS replicates the findings of previous research (Jurbergs et al., 2009) and suggests parental resilience to the stressors that accompany a diagnosis of childhood cancer.

The authors recognize that the current findings represent more positive results than have been found in some previous studies, but point out that most did not include control group results. For example, Kazak, Alderfer, et al. (2004) examined the rates and concordance of PTSD and PTSS in parents of adolescent cancer survivors. They found that PTSS are common among these families, with nearly 20% of families having at least one parent with current PTSD. Additionally they found that 99% of families include at least one family member re-experiencing symptoms, such as bothersome memories, arousal, or avoidance specific to the cancer experience. Of note, parents reported more symptomology than their children, with moderate to severe levels of PTSS seen on the Posttraumatic Stress Disorder Reaction Index (PTSD-RI) for mothers (43.7%), fathers (35.3%), and adolescent survivors (17.6%). Moderate to severe PTSS has also been reported by 32% of siblings (Kazak, 2006). Based on the Structured Clinical

Interview for the Diagnostic and Statistical Manual of Mental Disorders (SCID), qualification for current PTSD diagnosis was also noteworthy for mothers (13.7%) and fathers (9.6%), compared to previously reported rates of current PTSD for adults exposed to violent crimes or tragic deaths (7-11%). Results also indicated that 29.5% of mothers and 11.5% of fathers had met criteria for PTSD diagnosis at some point since their child's diagnosis. These results were compared to statistics for lifetime prevalence rates of PTSD for individuals experiencing at least one traumatic event (20.4% for females and 8.1% for males meeting diagnostic criteria).

Similar results have been found in other studies (e.g. Brown, Madan-Swain, & Lambert, 2003; Fuemmeler, Mullins, Van Pelt, Carpenter, & Parkhurst, 2005). Fuemmeler et al. (2005) reported 32% of parents of cancer survivors met criteria for PTSD, compared to 10% of parents of children with another chronic illness. Parents of survivors also reported higher levels of PTSS, even several years after the child's treatment completion. Also in agreement with the Kazak study, parents most commonly reported types of PTSS involving re-experiencing and avoidance. Brown et al (2003) found similar results with 36% of mothers endorsing mild subthreshold symptomology and 25% currently meeting diagnostic criteria for PTSD (compared to 7% of mothers of healthy adolescents).

Risk and resiliency factors. A review of the literature reveals that there are factors associated with greater risk for parental distress and psychosocial difficulties, as well as factors associated with greater resilience. Wallander and Varnie (1998) identified protective mechanisms that have been associated with resilience and parental adjustment in the face of stress related to children's illness. These resilience factors include stress processing (i.e., implementation of coping strategies), intrapersonal factors (i.e., perceptions of competence in problem solving, hope and social support, low perception of role restriction), and social-

ecological factors (i.e., family support, less family conflict, marital satisfaction, and service utilization). In a study of family resiliency which involved interviews with 42 parents (in 26 families) of children treated for cancer, resiliency factors that were identified included: rapid internal family mobilization and reorganization, social support (from health care team, family, community, and workplace), and changing their appraisal of the situation to make the experience more understandable, manageable, and meaningful (McCubbin, Balling, Possin, Frierdich, & Bryne, 2002). Alderfer and Kazak (2006) further cite research that indicates that both the implementation of coping strategies and the reciprocity in adjustment between parents are associated with less distress, indicating that discrepancies between parents in coping styles are correlated with greater individual difficulties. These researchers also found that anxiety and depression in individual parents is associated with greater marital distress, and that such distress is exacerbated in couples with greater discrepancy between their levels of state anxiety.

Phipps, Dunavant, Lensing, and Rai (2005) examined predictors of distress in parents of children undergoing stem cell or bone marrow transplantation, finding that the largest effect on parental outcomes was parents' reports of their own prior distress. Children's premorbid internalizing behavior problems were also significantly predictive of parental outcomes, as well as family cohesion and conflict, with parents who reported the most supportive family environment reporting the lowest levels of distress during the transplant process. Additionally, parental tendency towards avoidant coping behaviors were significant determinants of parental distress. Premorbid level of instrumental social support available to the parent and parents' use of problem-focused coping behaviors were examined and were not found to be significantly associated with parental distress outcomes in this study.

The association between coping strategies and parental distress was also examined by Fuemmeler, Mullins, Van Pelt, and Parkhurst (2005), who found that increased emotion-focused coping was associated with increased PTSS and general distress among parents of children with cancer. Emotion-focused coping strategies would include those aimed at trying to alleviate negative emotions, for example, through alcohol use or avoiding stressful situations. These researchers also found an association between illness uncertainty and both PTSS and general distress in parents.

Barrera et al. (2004) examined predictors and mediators of psychological adjustment of mothers of children newly diagnosed with cancer (MCC), as compared to mothers of children with acute illnesses (MCA). In addition to finding that MCC reported greater depressive symptomatology, emotion-focused coping, and social support, this study also found that emotion-focused coping and child behavior predicted depression, anxiety, and poorer global mental health (GMH) for MCC. In contrast, only emotion-focused coping predicted psychological adjustment for MCA, which may indicate that MCC have more adjustment difficulties uniquely related to their child's behavior.

In examining trajectories of adjustment in mothers of children newly diagnosed with cancer, Dolgin et al. (2007) identified 3 distinct subgroups of mothers whose adjustment patterns and trajectories could be distinguished by predictor data. They assessed mothers at diagnosis, and 3 months and 6 months later finding that, while scores were mildly elevated for negative affectivity and PTSS initially, there were steady improvements at follow-ups. When subgroups were identified, predictor variables for adjustment were also identified. The subgroups included low-stable distress (mood disturbance, depression, and PTSS scores low and stable across assessment points), moderate-stable distress (mood disturbance, depression, and PTSS scores at a

moderate level, and stable across assessment points), and high-declining (mood disturbance, depression, and PTSS scores initially high, but steadily declining across time). Predictor variables for the low-stable group (51% of participants) included less neuroticism, better problem-solving, more agreeable and extraverted, better educated, non-Israeli and, for predicting IES-R ratings, non-Hispanic speaking. Those in the moderate-stable group (43%) tended to have higher ratings for neuroticism, be poorer problem solvers, less agreeable and extraverted, single, Israeli, and Hispanic/Spanish speaking. Membership in the high-declining distress group (6%) was associated with similar characteristics as those in the moderate-stable group. Variables that were not associated with membership in any of the subgroups included: child's age, gender, or diagnosis of a brain tumor or leukemia, mothers age, marital status, or education, and association with certain cultural groups (African American, American Indian, Asian).

Change over time. Evidence of negative psychosocial effects for parents of children with cancer is evident in the literature, with some studies indicating that high levels of distress and PTSS may be present during treatment and post-treatment phases (Kazak et al., 2004; Sloper, 2000). However, research consistently indicates that these problems are often shown to return to normative levels one year after diagnosis (e.g., Sawyer, Antoniou, Toogood, Rice, & Baghurst, 2000). Sawyer et al. (1997) followed the psychological adjustment of young children, parents, and families for the first two years after children's cancer diagnosis, comparing adjustment to a group of children and families in the general community. While children with cancer and their parents presented with significantly more emotional distress than those in the community sample during the period immediately following diagnosis, the number of problems experienced decreased in the first year and stabilized, so that distress level was comparable to the

control sample at one year and two years post-diagnosis. A decrease in distress across time was not seen in the community group.

Longitudinal changes in parental distress from diagnosis through 24 weeks post diagnosis were examined by Phipps et al. (2005) and Steele et al. (2003). Results of both studies indicated relatively high levels of parental distress at admission, decreasing over time. Additionally, Steele et al. examined sources of stress (i.e., caregiver burden) and found these to remain stable, indicating that while distress levels may decrease, parents may benefit from interventions to improve parental coping resources.

Positive Outcomes. In addition to the promising outcomes indicating decreasing levels of distress, and despite findings of psychosocial adjustment difficulties, several studies have shown that most families exhibit tremendous resiliency, adjust well, do not experience clinically significant distress, and/or cope well with challenges faced throughout the cancer experience (e.g., Gerhardt et al., 2007; Kazak, 2006; Kazak, Cant, et al., 2003; Madan-Swain et al., 1993). Additionally some families are even able to identify positive outcomes resulting from the cancer experience. In fact, both mothers and fathers of adolescent cancer survivors have reported experiencing positive growth after facing cancer (Barakat, Alderfer, & Kazak, 2006). For example, they identified strengths in their partners' coping abilities, the tendency of partners to offer each other coping strategies, and greater tolerance over less important issues that may previously have been cause for conflict (McGrath, 2001). In a qualitative study of fathers' perspectives of family resiliency during childhood cancer, fathers identified a strengthening of the parental relationship as a positive outcome related to their children's illness (Brody & Simmons, 2007). When compared with parents of healthy classmates, one study found that parents of children with cancer 18 months post-diagnosis, reported more anxiety, but less family

conflict and more social support than controls. Overall, however, the research investigating parental adjustment has been mixed and no clear pattern of results has emerged (Vannatta & Gerhardt, 2003).

Impact of Family on the Pediatric Cancer Patient and Trajectory of Illness

It is important to consider, not only the impact of the illness on the family, but also how the family impacts the child with cancer and the trajectory of illness. Several studies have examined the correlation between parental and child distress, with the term "distress" encompassing depression, anxiety, posttraumatic stress symptoms, and subjective symptoms of stress (Steele, Dreyer, & Phipps, 2004). For example, Steele et al. (2004) examined patterns of maternal perceived and affective distress as predictors of child emotional (i.e. mood and behavior problems) and somatic (i.e. unpleasant symptoms such as fever) distress. Parental distress was assessed using The Perceived Stress Scale and a short form of the Profile of Mood States, while outcome data for child distress were based on the Mood/Behavior subscale of the Behavioral, Affective, and Somatic Experiences Scale. Results of analyses indicated that maternal group membership (High distress, Moderate distress, Declining distress, and Low distress) was significantly associated with mother-reported child mood/behavior problems, with significant differences in child distress across all groups at all three assessment periods (i.e. at each assessment period, mean levels of reported somatic distress differed across all four groups). Children of high distress mothers were found to be more emotionally distressed than those of declining stress mothers and low distress mothers, but not more emotionally distressed than those in the moderately distressed group. Children of mothers in the declining and low distress groups did not differ significantly. Additionally, children of mothers in the high distress group had more mother-reported somatic distress than those in the moderate or low distress groups, but not

more than those in the declining stress group. However, mother's pattern of distress was not significantly associated with nurse-reported child somatic distress.

Moderators of this effect were examined by Robinson et al. (2007) who sought to identify factors that influence the association between parent distress (i.e. psychological symptoms) and child distress (i.e., emotional and behavioral problems, decreased social competence, symptoms of anxiety and depression). In addition to confirming significant associations between parent and child distress and parental report of child internalizing problems, several moderators of impact of fathers' distress on children were identified. For example, children in a positive family environment were less susceptible to internalizing symptoms when their fathers were distressed.

In a review of the literature on family impact on the child with cancer, Alderfer and Kazak (2006) cite research that children are at greater risk for anxiety when mothers have a diagnosis of depression or anxiety. It is also evident from this review that higher levels of general distress in parents correlate with greater hopelessness in children with cancer and poorer adjustment, and that parent anxiety is related to child depression and externalizing behaviors. Additionally, both child internalizing and externalizing behaviors covary with mother's depression, anxiety, and global mental health. According to these authors, families with greater cohesion and expressiveness correlated with children experiencing fewer internalizing and externalizing behavioral problems and more social competence. Higher cohesion and expressiveness and lower conflict is also associated with less depression and hopelessness in children.

A child's likelihood of experiencing PTSD may also be associated with family factors (Alderfer, Navsaria, & Kazak, 2009; Pelcovitz, Goldenberg Libov, Mandel, Kaplan, Weinblatt, & Septimus, 1998). While the direction of influence was not identified in this study, Alderfer et

al. (2009) found that cancer survivors with PTSD were more likely than those without a history of PTSD to come from families who had poor functioning in problem-solving, affective responsiveness (quality or quantity of expressed emotion), and affective involvement (over- or under-involved in activities and interests of other family members). In fact, they found that adolescent cancer survivors with PTSD were more than five times as likely to come from poorly functioning families compared to well-functioning families, with 75% of adolescent cancer survivors with PTSD coming from families with categorically poor family functioning.

Pelcovitz et al. (1998) also studied the association between family functioning and PTSD in children with cancer. These authors found that a child is more likely to develop PTSD when the parents show high levels of anxiety, distress, or PTSD symptomology, or when there is a family history of depression and anxiety. In their study of adolescent survivors of cancer, Pelcovitz et al. found that adolescents who met criteria for lifetime PTSD (defined as presence of PTSD symptoms at some point during one's life), compared with those who did not, viewed their families as significantly more chaotic. In this study, all childhood cancer survivors with PTSD had mothers with current PTSD (defined as presence of symptoms within the last six months), while 83% of survivors who had lifetime PTSD also had mothers with lifetime PTSD.

Morris, Blount, Cohen, Frank, Madan-Swain, and Brown (1997) examined differences in child adjustment and family functioning in children with leukemia and healthy controls. They examined relationships between familial factors and adjustment, and investigated demographic and family variables as predictors for adjustment. Outcome data revealed no significant differences between groups of diagnosed children and healthy children in adjustment. However, in families with children diagnosed with leukemia, children's externalizing symptoms (i.e., acting out behaviors) were associated with greater family conflict and less encouragement of

autonomy. Further, there were associations in this group between more child internalizing problems (i.e. anxiety and depression) and lower family cohesion, less open expression and higher levels of control within the family.

Engel (2000) also explored factors associated with children's psychological adjustment to cancer, including reciprocity of parent-child coping and family functioning. Children ages 7-16 years were studied in terms of their coping style and that of their parents. The authors reported that increased parent monitoring (information-seeking) was associated with increased child blunting (distraction or avoidance responses), possibly indicating that children whose parents use increased monitoring may take a more passive stance in coping with difficult situations. Decreased monitoring was associated with higher scores on the Cognitive Development Scale (higher scores indicating more problems with adaptive skills, pragmatic skills, and academic skills, and lack of special abilities). Increased concordance between parent and child monitoring was associated with increased complaints and higher elevations on social incompetence and adjustment, possibly suggesting that when one member does not employ coping strategies to counterbalance the style used by the other, the child may adjust less positively. Low scores on family adaptability were associated with high scores on the Cognitive Development Score, and increased adaptability was associated with high elevations on somatic concerns scale. There were no significant effects of quality of parental marital relationship on child adjustment.

Peterson et al. (2014) examined the association between caregiver self-efficacy specific to six specific caregiver tasks, and child reactions (distress and cooperation) to treatment procedures. The specific caregiver tasks included keeping the child calm before the procedure, keeping the child calm during the procedure, hiding negative emotions form the child, gaining information to help self and child cope with procedures, keeping the child involved in normal

activities while waiting, and providing explanations to improve the child's understanding of the procedure. The researchers found that parent's self-efficacy was related to children's distress and cooperation during procedures. More specifically, higher levels of total caregiver self-efficacy were associated with lower levels of child distress and higher ratings of child cooperation. The authors propose that targeted interventions for parents to improve self-efficacy may have a positive impact on children's distress levels and cooperation during the plethora of procedures associated with childhood cancer diagnosis and treatment.

Psychopathology vs. Positive Psychology

Although there is evidence in the literature that childhood cancer may negatively impact the psychosocial growth of some children and adolescents and their families (i.e., Vannatta, Gartstein, Short, & Noll, 1998; Varni, Katz, Colegrove, & Dolgin, 1994), most studies indicate that there is a very low incidence of mental health problems in these children, with the majority of these children exhibiting no differences in psychopathology from healthy controls or population norms (Eiser, Hill, & Vance, 2000; Kazak, 1994; Noll et al, 1997; Phipps & Srivastava, 1997). There is even some research that indicates children with cancer have fewer symptoms of anxiety and depression than controls (Fuemmeler, Brown, Williams, & Barredo, 2005; Worchel et al., 1988; Phipps & Srivastava, 1997; Radcliffe, Bennet, Kazak, Foley, & Phillips, 1996). Psychological benefits, perceived benefits and positive impact of childhood cancer survival have also been expressed by survivors and their parents (Phipps et al., 2015; Phipps, Long, & Ogden, 2007; Zebrack et al., 2012). Altruism, sensitivity to others and the sense of being a better person because of the cancer experience have all been identified in the literature on childhood cancer survival (Mahajan & Jenney, 2004). Some survivors experience posttraumatic growth – the finding of meaningful, beneficial and positive changes in themselves,

their relationships, and their values – that result from surviving stressful experiences (Barakat, Alderfer, & Kazak, 2006; Children's Oncology Group, 2013).

As evidence of the resiliency of families experiencing pediatric cancer, a brief screening tool developed by Kazak et al. (Psychosocial Assessment Tool; 2001) revealed that 59.2% of families of children newly diagnosed with cancer fell in the Universal category (least at risk for psychosocial distress) of the Pediatric Psychosocial Preventative Health Model (PPPHM). Approximately 34% were in the Targeted category (at some risk), while only 7 % fell in the Clinical/Treatment category (Kazak, 2006; Kazak, Cant, et al., 2003). Similarly, Kazak (1994) reports that studies from the 1970's through the 1990's indicate that a minority of children diagnosed with cancer, 10-20%, experience ongoing difficulties.

Despite the evidence that the majority of individuals and families adjust well, historically many researchers tended to focus on deficit-centered research and practice, appearing to look for signs of maladjustment rather on the resilience of those involved in the pediatric cancer experience (Wallace, Harcourt, Ramsey, & Foot, 2007). Such an approach may be misguided, and there is evidence of a more recent move away from this deficit-centered approach to more emphasis on a more positive psychology approach, examining resiliency and the ways in which it is achieved (i.e., coping strategies) rather than maladjustment and psychopathology (Barrera, Wayland, D'Agostino, Gibson, Weksberg, & Malkin, 2003; Woodgate, 1999). There is some consensus now that it may be time to focus less on the potential negative outcomes and the search for psychopathology, and focus more on a positive psychology approach. In support of a positive psychology approach, Larson (2000) suggests that the understanding of pathways to positive psychological well-being is just as important as the understanding of pathways to psychopathology. Thus, more researcher has been focused on examining factors such as quality

of life, health related quality of life, subjective well-being, and styles of coping and adjustment. In addition to shedding light on what makes the majority of these patients and their families so resilient in the face of such adversity, such research would resist the mistake of thinking that an absence of psychopathology is actually indicative of good QOL, Subjective Well-Being, and Coping/Adaptation. In addition, it is important to examine these constructs, to avoid the opposite error of thinking that any presence of psychopathological symptoms would indicate perceived poor QOL, HRQOL, SWB, adaptation/coping (McKnight-Hexdall & Huebner, 2007).

More recent research that focuses on these constructs allows for examination of the differences in individuals/families at varying levels of being at risk for psychosocial difficulties. Identification of these differences allows for recommended interventions specific to varying levels within the PPPHM, i.e. to help support the competence of families in the Universal group and identify ways to prevent possible future difficulties, and to provide more intense intervention for the remaining groups (Kazak, 2006).

Quality of Life

In this move towards a positive psychology approach in the study of pediatric cancer, one construct that has been examined is quality of life (QOL). QOL has been defined by the World Health Organization to include physical, mental, and social well-being, not simply the absence of disease (Levi, 2006). It has further been defined as individuals' perceptions of their own functioning and well-being in various domains of life, and their evaluation of their position in life in the context of the broader systems within which they exist (i.e., culture) and in light of their goals, expectations, standards, and concerns (Kreitler & Kreitler, 2004). Additionally, some models of QOL suggest that QOL is achieved through a balance between hopes/expectations (what the individual would like to be able to do) and the individual's actual

experience (what they are able to do), so that QOL is enhanced when the gap (discrepancies) between hopes/expectations and ability is less (Eiser, Greco, Vance, Horne, & Glaser, 2004).

In a study of discrepancies as they pertain to QOL in childhood cancer survivors, Eiser et al. (2004) identified five strategies used by survivors to reduce discrepancies. These included changing activities from something unachievable to something achievable, devising a realistic action plan to compensate for weakness, emotional denial, making social comparisons (e.g., identifying others who are worse off), and seeking social support.

Reviewing the research on quality of life in children with cancer, Kreitler and Kreitler (2004) found that QOL does not appear to be predictable from the child's medical state (i.e. diagnoses, disease stages, and being on-or off-treatment appear to affect QOL, but not consistently). Additionally, they report that the QOL of children with cancer is not consistently lower than that of healthy peers, and sometimes may be higher. They also indicate the importance of conducting assessments with children themselves, rather than relying on QOL assessed by proxy figures (i.e., parents, physicians), as these assessments do not always accurately represent children's QOL.

Health Related Quality of Life

The construct of QOL has been expanded to include HRQOL, which is defined as the individual's satisfaction or happiness with different domains of life as they pertain to one's health, generally referring to the effects of the disease and/or treatment on physical, functional, social, psychological/emotional and cognitive functioning (Eiser, 2007; Kreitler & Kreitler, 2004; Mulhern et al., 1989). HRQOL consists of both objective and subjective perspectives (Barrera et al., 2003; Eiser & Morse, 2001). The construct of HRQOL is consistent with the

biopsychosocial model, in that it emphasizes the importance of various influences on the child's functioning (i.e. biological, social, and familial) (Levi, 2006).

Reviewing the current research on HRQOL in childhood cancer survivors, Levi (2006) reported on study results which examine HRQOL as a function of disease type, treatment status, and age. Results tend to indicate that children with brain tumors have poorer overall HRQOL across several domains when compared to healthy peers or children with other forms of cancer. Higher levels of HRQOL have been associated with higher socioeconomic status and, in some studies, longer time since treatment. Level of HRQOL has also been associated with age, with younger children exhibiting better HRQOL throughout the treatment process.

In a study of HRQOL, Barrera et al. (2003) examined age differences and predictors of psychological adjustment (PA) and HRQOL. The study included pre-school, school age, and adolescent patients at 3, 9, and 15 months post-diagnosis. Results of this study indicated a correlation between age at diagnosis and HRQOL, with preschoolers having better HRQOL than adolescents at all 3 assessment periods. Additionally, there were significant main effects of time since diagnosis, with higher ratings for HRQOL (indicating better HRQOL) at 9 and 15 months post-diagnosis, compared to 3 months post-diagnosis. Notably, child temperament and maternal adjustment did not appear to predict HRQOL in this study. The authors indicate that being ill and dependent on parents may inhibit adolescents from developing autonomy, an important developmental task at this stage, which may be affecting their HRQOL. Thus they suggest that preventative measures and interventions be implemented to address this developmental issue for adolescent patients.

Another study examined differences in HRQOL between children with cancer and a group of healthy peers (Jurbergs, Russell, Long, & Phipps, 2008). Results of this study indicated

that there is little difference between the groups on HRQOL measures in psychosocial domains, such as mental health, self-esteem, and family functioning. However, on physical scales of the Children's Health Questionnaire, healthy children reported better HRQOL.

There is reportedly some difficulty in assessing such complex constructs as QOL, which results in some inconsistency in research (Kazak, 1994; Mulhern, Ochs, Armstrong, Horowitz, et al., 1989). This may be due to a lack of a generally accepted measure (Mulhern et al., 1989), or the use of a variety of measures to measure such concepts (Kreitler & Kreitler, 2004). Furthermore, such studies are characterized by a high degree of heterogeneity with respect to: the patient samples (e.g. survivors with different cancers who have undergone a variety of treatments), the comparison groups selected, the HRQOL dimensions assessed, and the instruments employed (Stam, Grootenhuis, Caron & Last, 2006).

Subjective Well-Being

Subjective well-being (SWB) is an indicator of quality of life which encompasses an individual's assessment of his or her own positive affect (i.e. joy, contentment), absence of unpleasant affect (i.e. anger, depression), global life satisfaction (i.e. satisfaction with current life, satisfaction with the past), and domain satisfaction (i.e. family, health; Diener, Suh, Lucas, & Smith, 1999). Subjective well-being in adolescents has been positively correlated with perceived social support, confidence in one's social abilities, positive attitudes towards teachers, academic performance outcomes (i.e. GPA, reading assessments, confidence in academic ability), and physical health (Suldo, Huebner, Savage & Thalji, 2011). While SWB does not appear to be lower among children with chronic illness (McKnight-Hexdall & Huebner, 2007), it has been associated with better general health in children and adolescence (i.e., less illness, more

positive perceptions of one's health, fewer disruptions to daily living due to health problems, and less engagement in risky behaviors).

McKnight-Hexdall and Huebner (2005) explored positive and negative SWB reports in pediatric oncology patients and their parents, comparing these groups to each other and to groups of matched, healthy controls. Results of the study indicated that children and adolescents with cancer did not differ significantly from healthy peers on SWB levels. SWB variables remained stable over time (from 6 to 104 months post-diagnosis), with the exception of hope which increased as participants progressed through treatment. Parent ratings of their own SWB were positively related to their children's ratings for SWB measures.

Adaptive Style

Adaptive style is another useful construct in examining the adjustment of children diagnosed with cancer from a positive psychology perspective. It has been suggested that a unique adaptive style present in children with cancer may account for the unexpected low incidence of adjustment difficulties and affective disturbance (Phipps & Srivastava, 1997). While there are many specific approaches to coping and adjustment, the critical shared element is an emphasis on factors that contribute to successful adaptation and handling stress. A common adaptive style paradigm used in studies of adaptation in pediatric cancer research was originally developed by Weinberger, Schwartz, and Davidson (1979) to help explain low correlations between self-report of distress (i.e. anxiety) and physiological measures of anxiety. The Adaptive Style paradigm includes two measures: subjective distress and defensiveness. Cutoffs are determined so that individuals can be assigned to one of four categories: high anxious, low anxious, defensive high anxious, and repressor (see Table 1). Individuals in the high anxious category are highly physiologically reactive (high distress) and score low on measures of

defensiveness. Low anxious individuals have low levels of physiological reactivity (low distress) and also score low on measures of defensiveness. Individuals who are categorized as defensive high anxious have high levels of distress and score high on measures of defensiveness. Repressors report the lowest levels of anxiety, but are highly physiologically reactive and score high on defensiveness measures (Jurbergs, Russell, Long, & Phipps, 2008; Phipps, 2007; Weinberger et al., 1979).

Table 1

Categorization of Adaptive Style by Measures of Distress and Defensiveness

	High Anxious	**Low Anxious**	**Defensive High Anxious**	**Repressive**
Distress	high	low	high	low
Defensiveness	low	low	high	high

This paradigm has more recently been introduced by Phipps (2007) as a model for understanding the positive psychosocial adjustment that is generally observed in children with cancer, and to help integrate findings regarding repressive adaptive style, common in this population (Canning, Canning, & Boyce, 1992; Jurbergs, Russel et al., 2008; Phipps & Srivastava, 1997), into a positive psychology framework. The paradigm has been adapted to include behavioral manifestations (i.e., anxiety, anger) of adaptive style rather than physiological responses (Steele, Elliott, & Phipps, 2003), as this means of adaptive style grouping provides adequate differentiation of individuals on measures of physiological reactivity (Weinberger et al. 1979).

The research of Phipps et al. (2001, 2002, 2006, & 2007) indicates that this repressive adaptive style is a pathway to resilience in the pediatric cancer population. It is important to note

that children with a repressive adaptive style are not simply engaging in denial or impression management but truly view themselves as well-adjusted and content, and engage in behavior to protect that self-perception (Phipps & Steele, 2002). Research indicates that repressors also tend to view themselves as lacking in worry, and they have low levels of psychological and somatic distress (Jurbergs, Long, Hudson, & Phipps, 2007).

Repressive adaptive style appears to be a response to the diagnosis of cancer (or other chronic illness), as a reaction to the stresses of a serious illness. Phipps, Steele, Hall and Leigh (2001) used a prospective, longitudinal design, to assess adaptive style in children with cancer at the time of diagnosis, at six months post-diagnosis, and one year post-diagnosis. This study also included a control group of healthy children and a group of chronically ill, but nonmalignant, children. Results of the study indicated higher levels of repressive adaptive style in children with cancer, compared to healthy children, with these differences present from the earliest assessment period. High levels of repressive adaptation were also found in children with other chronic medical conditions. The authors suggest that, together, these findings indicate that a shift toward repressive adaptive style occurs reactively, as a contingent response to the stressors of serious illness. This shift in adaptive style occurs within days or, at most, a few weeks, of the cancer diagnosis (Phipps et al., 2001). Further, results of the study indicated that levels of repressive adaptation remained relatively stable across assessment periods, providing evidence that once a shift to this adaptive style occurs, it is maintained over time, for at least one year after diagnosis.

Adaptive style has been shown to be correlated with depression, PTS, and HRQOL (Phipps, 2007). For example, high anxious children report the highest level of symptoms of depression, while repressors report the lowest (Canning, Canning, & Boyce, 1992; Phipps, 2007; Phipps & Srivastava, 1997). In regards to PTS, children identified as low anxious or repressors

obtained the lowest levels of PTS, with high anxious children obtaining the highest levels (Phipps, Jurbergs, & Long, 2009; Phipps, Larson, Long, & Rai, 2006). Similarly, parents identified as low anxious or repressors self-reported lower levels of PTS than high anxious parents, and also reported lower levels of PTS in their children (Phipps, Larson, Long, & Rai, 2006). Additionally, children identified as repressors and low anxious reported the best HRQOL, particularly in psychosocial domains (Jurbergs, Russell et al. 2008). Erickson, Gerstle, and Montague (2007) also examined the relationship between repressive adaptive style and PTSD, PTSS, and psychosocial functioning in adolescent cancer survivors. Based on effect sizes, results of this study indicated that adolescents identified as repressors reported fewer trauma symptoms, trauma spectrum symptoms, and behavioral and emotional problems as well as better QOL compared to non-repressors. Additionally, adolescents categorized as repressors reported comparable QOL, as well as emotional and behavior problems, to healthy peers (normative data), while non-repressors reported elevated total clinical problems compared to normative data, and QOL that was comparable to data for chronically ill children.

Other variables have also been studied in association with repressive adaptation, including culture and family functioning. One study examined adaptive style among healthy children and those with a serious illness (i.e., cancer, cystic fibrosis, diabetes, juvenile rheumatoid disorders), examining race and health status as determinants of anger expression and adaptive style (Steele, Elliot, & Phipps, 2003). Outcome data measuring anger expression (Anger Expression scale for Children), defensiveness (Children's Social Desirability Questionnaire), and anxiety symptoms (State-Trait Anxiety Inventory for Children) indicated that African American children reported lower anger expression and greater use of repressive adaptive style than Caucasian children. Lower anger expression and greater use of repressive

adaptive style was also found among children with chronic illnesses than healthy peers. An additive effect of race and illness was also found. African American children who have been diagnosed with a serious illness engaged in a repressive adaptive style more frequently than healthy African American children, and more frequently than healthy or ill Caucasian children. The greatest difference in repressive adaptive style occurs between seriously ill African American children and healthy Caucasian children.

Repressive adaptation has also been associated with perceived family functioning in families experiencing pediatric cancer. Fuemmeler, Brown, Williams, and Barredo (2003) examined these associations, finding that child- and parent-perceived family support buffered a repressive adaptive style in caregivers, but not in children diagnosed with cancer. Perceived positive family relationships were correlated with less defensive responding in caregivers. These authors suggest that a more repressive/defensive adaptive style results in less accurate reporting of distress and adjustment problems related to the illness, so that families who are more supportive facilitate greater accuracy and less defensive reporting of such difficulties. However, in response to this research, McMenamy and Perrin (2003) caution that questioning the accuracy of low levels of distress insinuates that adjustment difficulties should be the norm, rather than an indication of the resiliency of these children and their families.

Another paradigm involves approach vs. avoidant styles of coping (Phipps & Srivastava, 1997). Using this paradigm, it was found that children with cancer self-reported use of avoidant coping, or blunting, more than healthy peers. While the process of blunting is similar to repressive adaptation in that both protect the individual from awareness of threatening realities, blunting is characterized by a conscious effort to respond to a stressor, while repression occurs

automatically and without awareness. Thus repressive adaptation remains stable, while blunting changes in response to changes in the environment.

The idea that children who have been diagnosed/treated with cancer can possibly be doing so well, psychosocially, is hard for some to understand. Research indicating the resilience of these children is often undermined by investigators explaining this outcome away by blaming inadequate outcome measures or participants' use of denial, avoidance, or repressive coping style (Phipps, 2005). Phipps suggests that investigators consider the possibility that these children are actually doing well psychosocially. Further, Phipps reports that some researchers are concerned that there may be negative consequences to the repressive adaptive style in this population, as there is research supporting this notion in the adult literature (i.e. poor physical health outcomes; Greer, 1999). However, such negative associations are not found in studies with pediatric cancer patients, and adaptive style has not been found to be correlated with trajectory of illness in the pediatric population (Phipps, 2005; Phipps & Srivastava, 1997).

Interventions

With growing evidence for the relationship between a repressive adaptive style and better adjustment in children with pediatric cancer, it will be important to consider how this knowledge may be used in practice to provide effective interventions to the smaller portion of the pediatric cancer population that is not adjusting as well. Although the research on evidence-based psychosocial interventions is limited in the literature (Alderfer & Kazak, 2006; Kazak, 2006; Kazak, 2007), there is evidence for effective interventions that may be applicable in addressing adaptive style. For example, studies implementing cognitive behavioral therapy, psychoeducation, teaching coping skills, problem-solving, and family systems therapy have resulted in positive outcomes for addressing pain and procedural distress, promoting family

interactions, functioning, and well-being, and improving psychosocial outcomes (e.g., Conte & Walco, 2006; Kazak, 2005; Kupst & Bingen, 2006; McCaffrey, 2006; Ettinger & Heiney, 1992; Sahler et al., 2002; Varni et al., 2002). Interventions specifically designed for parents have shown effectiveness in reducing general psychological distress, posttraumatic stress symptoms and caregiver burden in parents, and in reducing internalizing symptoms in their children (Fedele et al., 2013; Mullins et al., 2012).

Kazak and Null (2015) emphasize the importance of early screening to determine the level of support and intervention that each child and family may require to facilitate coping and minimize negative psychological late effects. A screening tool, such as the Psychosocial Assessment Tool (PAT), can be used soon after diagnosis to effectively identify risk classification to identify the necessary levels of support and intervention. For example, children and families in the broadest and most common risk category, Universal, will benefit from basic psychosocial care (i.e, education and provision of resources) and possibly brief behavioral interventions. At the Targeted level (20-25% of families), children and families may require more targeted interventions. For example, interventions designed to reduce symptoms of pain, child anxiety, and parent distress, as well as increase adaptive adjustment in the family. At the clinical level (less than 10% of children and families), the authors suggest that more intensive evidence-based interventions may be necessary.

Purpose of the Current Study

As both the incidence and survival rates of pediatric cancer have increased over the past few decades, researchers and practitioners have begun to focus on the well-being of patients and their families during and after treatment. For example, more attention has been given to the constructs of quality of life and subjective well-being in this population (e.g., Eiser & Greco,

2004; Kreitler & Kreitler, 2004; McKnight-Hexdall & Huebner, 2007). With research indicating that patients and families appear to exhibit great resilience and adjustment (e.g., Kazak, 1994; Noll et al. 1997; Eiser et al., 2000), some researchers have also begun to examine adaptive style as a useful construct in understanding the surprisingly low incidences of adjustment and psychosocial difficulties (Phipps & Srivastava, 1997). Research pertaining to this construct has established that a repressive adaptation style is more common among pediatric cancer patients than healthy peers, and that this style is a pathway to resilience for this population (e.g. Canning et al., 1992; Jurbergs et al., 2008, Phipps et al., 2001; Phipps et al., 2002).

Adaptive style has also been examined in relation to depression, PTS, HRQOL, culture and family functioning. However, within a biopsychosocial framework, there are many other variables to explore that may be associated with adaptive style. For example, little is known about the adaptive style of parents of pediatric cancer patients, and no research has been conducted to examine if there are correlations between patients' and parent's styles. Further, no research has been conducted to examine relationships between adaptive style and academic variables for this population.

In conclusion, the current study sought to examine issues that have limited to no empirical support to date. This study was designed to contribute to the literature base regarding adaptive styles of pediatric cancer patients and the relationship between adaptive style, quality of life, and psychosocial outcomes.

CHAPTER THREE:

METHODS

This chapter describes the participants, measures, and procedures that were utilized to identify variables related to the adaptive styles of children and adolescents who have been diagnosed with cancer. These methods were also used to determine whether adaptive styles are associated with adjustment and coping strategies. An additional primary purpose for utilizing these methods was to examine the relationship between youth and parent adaptive styles. The chapter concludes with a discussion of the analyses used to address the research questions.

Participants

Agencies both within and outside the state of Florida that provide services for children diagnosed with cancer and their families served as sites for the recruitment of participants and data collection. Approximately 200 agencies nationwide were identified through internet searches. The primary investigator contacted each of these agencies by email, telephone, and/or social media to request assistance in the recruitment of participants. Most of these agencies did not respond to this contact or declined assistance with this study. Most individuals who declined reported that they did not have time to help with recruitment. A few agency contacts reported other reasons, such as not wanting to burden families with requests or fearing that this might interfere with their own on-going research. Individuals from twelve agencies agreed to participate and assisted in the recruitment of participants. The majority of these agencies were located in Florida. Agencies were also located in Colorado, Indiana, Oregon and New York. Approximate percentages of participants recruited from each agency can be seen in Appendix A.

At least one individual who worked at each participating agency assisted in the recruitment of participants by making initial contact with prospective participants. The assisting staff member for each agency was the President, Director, Social Worker, or another staff member identified by the Director to assist (i.e., Client Advocate). Information about the study was provided by letter, e-mail, flyers available at the site, and/or social media. The Primary Investigator's contact information was included so that interested individuals could call or email for additional information. Examples of these communications are included in Appendices B, C, and D.

Youth between the ages of 9 and 17 years who were currently receiving medical treatment for cancer, or had received medical treatment for cancer within one year prior to participation, were invited to participate in this study. For the purpose of this study, the definition of "currently receiving treatment" included those youth who had recently initiated treatment (i.e., remission induction), youth who were receiving continued treatment to consolidate remission (i.e., consolidation phase), and youth who were in their final stages of treatment (i.e., maintenance therapy - drug therapies and/or periodic intrathecal therapy; maintenance therapy). Participants were not considered "currently receiving treatment" if medical therapies for the treatment of their cancer (i.e., surgery, radiation, and chemotherapy) had been completed/terminated. Participants also included one primary caregiver of each participating youth. In the event that both parents were available, they were asked to decide which parent would participate in the study. Exclusion criteria included non-English speaking individuals (youth and parent), presence of a known cognitive disability, and individuals who had been off treatment for their cancer diagnosis and symptoms for over one year. In order to be included in the study, both the parent and the youth in a parent-youth dyad had to speak English and have no known cognitive disability. These inclusion criteria were necessary, as all of the

published measures were written in English. In order to insure that these criteria were met, individuals from recruiting agencies were instructed not to recruit participants who did not meet these inclusion criteria. Additionally, the primary investigator asked potential participants if they met those criteria prior to obtaining consent and initiating participation.

Sample Size

An a priori power analysis was conducted and determined that a sample size of 180 youth participants was needed to detect a difference between groups if a difference did exist. Specifically, at power = .80 for $\alpha = .05$, and a medium effect size, Cohen (1992) recommends 45 participants per group for four groups, when conducting one-way analyses of variance. A total of 180 youth and their respective participating parents were included in this study.

Instrumentation

Measures Completed by Youth

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

The PANAS-C is a 27-item measure comprised of two subscales measuring positive and negative affect. The Positive Affect (PA) scale has 12 items reflecting positive emotion, such as interested, joyful, and proud. The Negative Affect (NA) Scale has 15 items reflecting negative emotions, such as hostile, guilty, and gloomy. Children rate items on a 5-point Likert scale ranging from 1 (very slightly to not at all) to 5 (extremely). Composites for positive and negative affect are created by averaging the scores of the positive affect items, and then averaging those denoting negative affect. Scores from both the Positive and Negative Affect scales were used for the purposes of this study.

The PANAS-C was developed using students in grades 4-8 and was based on the adult version of the PANAS (PANAS-X; Watson & Clark, 1991). Items from this original measure

were evaluated based on children's ability to read and understand them. A preliminary scale of 30 items (15 PA and 15 NA) was developed and examined for psychometric properties. Preliminary scale validation was conducted with children in a general school population and a sample of children from an inpatient psychiatric setting. The resulting scale includes 27 items (12 PA and 15 NA). Although the original PANAS was designed for use with adults, the PANAS-C was developed utilizing students in grades 4-8; thus, there is a gap for young adults in 9th thru 12th grades. Some of the older youth participants in the current study are in this age range. Therefore the PANAS-C was used to ensure that all participants in the current study understood the assessment items. The PANAS-C has been used in several other studies with youth above the 8th grade level (Ladouceur, Conway, & Dahl, 2010 – ages 9-17; Lewis, Huebner, Reschly, & Valois, 2009 – grades 7-10; Suldo & Huebner, 2004 – grades 6-11; Talbot, McGlinchey, Kaplan, Dahl, & Harvey, 2010 – ages 10-60).

Psychometric properties for this measure demonstrate that it is a reliable and valid instrument. The intercorrelation between the Positive and Negative Affect subscales was reported as -.25 in an original sample and -.20 in a replication sample. Internal consistency was reported as .90 and .89 in the two samples for the positive affect scale, and .94 and .92 for the negative affect scale. The PANAS-C also demonstrated good convergent and discriminant validity. Construct validity has been supported by expected relationships with anxiety and depression. For example, the PA scale was negatively correlated with the Children's Depression Inventory (CDI) and showed a nonsignificant relationship with anxiety, as measured by the STAIC Trait Anxiety scale (Laurent et al., 1999). Reliability and validity of this measure have been further demonstrated in more recent studies (e.g., Hughes & Kendall, 2009; Lewis et al., 2009). For example, significant positive correlations were found between NA and measures of

trait anxiety (.43 and .40), social anxiety (.29), worry (.38), separation anxiety (.29) and depression (.40). Although there was some correlation between the PA subscale and these measures, these measures were more strongly associated with the NA subscale. Additionally, the NA scale significantly predicted trait anxiety, worry, and separation anxiety. The PA scale did not predict these scores of anxiety measures, but did predict social anxiety (Hughes & Kendall, 2009). Lewis et al. (2009) reported that PA predicted school satisfaction and student engagement (.46), adaptive coping styles (support seeking and problem solving; .46 and .38, respectively), and GPA (.13). The NA scale similarly predicted these criterion variables, with negative correlations.

Student's Life Satisfaction Scale (SLSS; Huebner, 1991). Life satisfaction is a person's subjective judgment of his or her quality of life. It can be examined from both a global perspective (overall judgment) and a domain-specific perspective (i.e., family experience). The Student Life Satisfaction Scale (SLSS) is a seven-item self-report measure of global life satisfaction for youth in grades 3 through 12. The measure is domain-free and intended to assess global life satisfaction, separate from specific domains. Scoring of the SLSS involves obtaining an average overall score by reverse-scoring negatively worded items, adding all item responses, and dividing by seven. Higher scores are indicative of higher global life satisfaction. While cutoff scores for levels of life satisfaction have not been established, one study has suggested that scores at or above four indicate positive life satisfaction (Suldo & Huebner, 2004).

Studies examining the psychometric properties of the SLSS have been favorable. Coefficient alphas in the .73 (Terry & Huebner, 1995) to .88 (Gilman & Huebner, 2006) range have been reported across age groups. Test-retest reliability has been reported, indicating moderate stability over time. For example, coefficients of .76 across two weeks (Terry &

Huebner), .64 across four weeks (Gilman & Huebner, 1997), and .53 across one year (Huebner, Funk, & Gilman, 2000) have been reported.

The SLSS has been determined to be a valid measure. Factor analyses supported a one-factor structure for the SLSS (e.g., Huebner, 1991). Support for the measure's convergent validity is evidenced in correlations with other life satisfaction self-report measures (i.e., Perceived Life Satisfaction Scale, Piers-Harris Happiness subscale, Andrews and Withey one-item scale, & DOTS-R Mood scale; Huebner, 1991), parent reports (Dew & Huebner, 1994; Gilman & Huebner, 1997), and teacher reports (Huebner & Alderman, 1993). Evidence of discriminant validity has been supported when compared to measures of other constructs (i.e., poor grades, IQ), with which life satisfaction does not relate (Huebner, 1991). Construct and predictive validity have also been demonstrated (Gilman & Huebner, 2006; Huebner, 1991; Suldo & Huebner, 2004).

Children's Social Desirability Scale (CSD; Crandall et al., 1965). The CSD scale was modeled after the Crowne-Marlowe Social Desirability Scale (1960) which was developed to measure social desirability in adults. Since the Crowne-Marlowe scale's development, evidence of its utility in measuring defensiveness has been demonstrated (Crowne & Marlowe, 1964; Weinberger, Schwartz, & Davidson, 1979), and it has been found to effectively discriminate between low anxious individuals and repressors in the adaptive style paradigm (Weinberger, Schwartz, & Davidson). Just as the Marlowe-Crowne Social Desirability Scale is used as a measure of defensiveness with adults, the CSD is used as a measure of child defensiveness within the adaptive style paradigm.

The scale comprises 48 items representing behaviors and attitudes that are socially desirable but improbable (e.g. "I am always polite, even to people who are not nice to me" and "I

never tell a lie"). A written true-false form of the scale is administered for children in grades 6-12, while a direct question form, with items answered "yes" or "no" is recommended for oral administration for younger children. Twenty-six items are keyed "true," while the remaining 22 items are keyed "false." For scoring, student responses are coded as 1 for True and 0 for False. Items keyed "false" are reverse scored, so that computation of scores is simple addition, with possible scores ranging from 0 to 48. Higher scores are indicative of a tendency towards defensiveness. Cutoff scores are age corrected, with a cutoff of 15 for youth aged 7-9; 12 for youth aged 10-13, and 10 for those aged 14-17 (Phipps et al., 2006). Mean scores range from 11 to 31, with standard deviations of 7-11, depending on age and sex of respondents (Crandall, 1966). Cutoff scores for determining high or low defensiveness are age corrected. For the purposes of this study the cutoff scores on the CSD were used, in conjunction with the STAIC score, to categorize youth participants' adaptive style

The CSD was originally developed and validated with a sample of 956 children in grades 3 through 12 (Crandall, Crandall, & Katkovsky, 1965). The scale authors reported high split-half reliabilities, corrected by the Spearman-Brown prophecy formula, ranging from .82 to .95. They also reported test-retest correlations of .85 and .90 after one month. Moderate to large test-retest reliabilities indicate that the measure assesses "trait-like" features, rather than transient affective states (Hancock & Phipps, 2006).

Evidence for the validity of the CSD scale also is reported. Significant negative correlations with CSD scores were correlated with achievement themes in children's stories to TAT-like pictures, subscales of the California Personality Inventory (i.e. social presence, good impression), and with social and achievement behaviors in free play (i.e. frequency of instigating verbal and physical aggression, recognition-approval seeking; Crandall et al., 1965; Crandall,

1966). More recently, Braithwaite and Scott (1991) examined the validity of the CSD scale, reporting correlations with the Marlow-Crowne Social Desirability Scale (.78) and with the Good Impression Scale (Gough, 1952; .51).

A revised version of 25-items has been used with populations of children diagnosed with cancer (e.g. Hancock & Phipps, 2006; Phipps & Srivastava, 1997; Phipps et al. 2006). High internal reliabilities are reported in these studies, consistently .88 and .87. Test-retest stability ranged from .60 to .67 and correlation with the original Crowne-Marlowe Social Desirability Scale was .64 (Hancock & Phipps, 2006). This revised version was used for the purposes of this study.

State-Trait Anxiety Inventory for Children (STAIC; Spielberger, 1973). In the assessment of anxiety, it is important to distinguish between anxiety as an emotional state (state anxiety) and individual differences in anxiety as a personality trait (trait anxiety; Papay & Spielberger, 1986). State anxiety is considered a transitory emotional condition that consists of feelings of tension, apprehension, nervousness, and worry, and heightened activity of the autonomic nervous system. These are subjective, consciously perceived feelings that vary in intensity and fluctuate over time. In contrast, trait anxiety refers to individual differences in anxiety-proneness (i.e., relatively stable individual differences in anxiety proneness, the tendency to experience anxiety states, and the disposition to perceive evaluative situations as threatening and to respond to threats to self-esteem with elevations in state anxiety).

The State-Trait Anxiety Inventory for Children (STAIC; Spielberger, 1973) is a self-report rating scale for measuring anxiety in children. This measure was developed based on the adult version, the State Trait Anxiety Inventory (STAI; Spielberger, 1960 & 1983). The STAIC was designed to have similar content to the STAI, but was simplified for facilitation with

younger children. These measures consist of separate, self-report rating scales for measuring both state and trait anxiety. The 20-item state anxiety scale measures the level of intensity of the child's feelings of tension, nervousness, worry, and apprehension at a given moment in time. Children are instructed to report how they feel right now on a 3-point rating scale. Each item begins with "I feel," followed by three choices. For example: "I feel – very nervous, nervous, not nervous." The child is asked to respond by circling the choice that best describes the child at that moment. Half of the scale items reflect the presence of anxiety (e.g., scared, nervous, etc.), while remaining key terms are indicative of the absence of anxiety (e.g., pleasant, calm, etc.). The 20-item trait anxiety scale requires children to indicate on a 3-point rating scale, how frequently they experience a given behavior. For example, for the statement "I worry too much," a child responds by circling "hardly ever," "sometimes," or "often." The key terms in 13 of these scale items reflect the presence of anxiety, while key terms in the remaining items reflect the absence of anxiety. Population norms of mean scores have been reported as 38.0 +/- 6.7 for females and 36.7 +/- 6.3 for males (Spielberger, 1973).

For the purposes of this study, consistent with previous research of the adaptive style paradigm with the pediatric cancer population, only the trait anxiety scale was used as a measure of subjective distress. Dispositional anxiety has been the predominant subjective distress index since the development of Weinberger's (1979) adaptive style paradigm. This measure was used in conjunction with CSD scores to categorize participants' adaptive style. A single score is calculated for this measure, with higher scores indicative of higher anxiety.

The STAIC was originally constructed and standardized for children in grades 4-6. However it has been shown to have acceptable psychometric properties in group administration of the assessment with second and third grade students, and individual administration with

students in Kindergarten and first grade (Papay & Spielberger, 1986), and with adolescents (i.e., Jurbergs et al., 2008 – ages 7-18; Phipps & Srivastava, 1997 – ages 7-16; Phipps et al., 2006 – ages 7-17). Additionally, results of a reliability generalization study of the STAI, which included over 800 journal articles published between 1990 and 2000, indicated that internal consistency was lower when used with individuals under the age of 16; therefore, authors of the generalization study recommended the use of the STAIC for youth younger than 16 years (Barnes, Harp, & Jung, 2002). Substantial evidence of internal consistency, reliability, and validity for this measure is reported in the STAIC manual (Spielberger, 1973) with internal reliabilities ranging from 0.78 for females to 0.81 (males), and 6-week test–retest reliability of 0.71. More recent studies have reported internal reliabilities of .85 and .88 (Jurbergs et al., 2008; Phipps & Srivastava, 1997; Phipps et al., 2006). The anxiety trait scale is relatively stable over time and highly correlated with other standard measures of trait anxiety in children. For example the STAIC trait anxiety scale was found to correlate with the Children's Manifest Anxiety Scale (.75) and the General Anxiety Scale for Children (.63; Spielberger, 1973). Evidence of the construct validity of the STAIC is provided by relationships obtained between state and trait anxiety and performance on tasks of varying difficulty in college students and elementary students (Papay, Costello, Hedl, & Spielberger, 1975; Spielberger, 1973). Alpha coefficients for the trait anxiety scale in individual testing conditions in a study of 948 elementary aged children ranged from .82 – .89 (Papay & Spielberger, 1986). Further, significant correlations have been found between STAIC trait anxiety scores and measures of school achievement (Papay & Spielberger, 1986).

Cognitive Emotion Regulation Questionnaire – Kids (CERQ-k; Garnefski et al., 2007). The CERQ-k is a self-report questionnaire that measures nine cognitive emotion

regulation strategies which children may use to cope with the experience of a negative life event. This measure was developed based on the adolescent/adult version, the Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski, Kraaij & Spinhoven, 2001). The CERQ-k was designed to maintain the same structure, content, and scoring procedures as the original version, but items were rephrased and shortened for facilitation with younger children (Garnefski, Rieffe, Jellesma, Terwogt, & Kraiij, 2007). Like the original version, the CERQ-k contains nine subscales, consisting of four items each, for a total of 36 items. The answer categories for each item range from 1 (almost never) to 5 (almost always). Subscale scores are obtained by summing the four items, with a minimal score of 4 and maximum score of 20. Higher subscale scores indicate higher use of the cognitive strategy.

The nine subscales/strategies included in this measure are:

1. Self-blame: putting the blame of the negative life experience on oneself.
2. Other-blame: putting the blame of the experience on someone else.
3. Acceptance: accepting what has happened and resigning oneself to what has happened.
4. Planning: thinking about steps to take to handle the negative event.
5. Positive Refocusing: thinking about pleasant things rather than the negative event.
6. Rumination: thinking about the feelings and thoughts associated with the negative event.
7. Positive Reappraisal: attaching positive meaning to the event in terms of personal growth.
8. Putting into Perspective: playing down the seriousness of the event or emphasizing relativity in comparison to other events.

9. Catastrophizing: thoughts explicitly emphasizing the terror of the experience.

Scale authors reported that psychometric properties of the CERQ-k are good (Garnefski et al., 2007). A principle component analysis was performed to examine factorial validity. The nine factor solution was found to be consistent with the theoretical structure of the original CERQ. While there were two deviations evident (one of nine eigenvalues was lower than one, and seven items did not actually have their highest loadings on the assigned subscale), the results still suggested a justifiable distinction of the nine separate subscales. All subscales had good internal consistencies, with most alphas ranging from .70 to .80. Additionally, while correlations among subscales were moderately high, they did not reach levels of collinearity, indicating that they could be distinguished as separate and reliable subscales. Correlations ranged from .03 (catastrophizing and positive refocusing) to .58 (positive reappraisal and refocus on planning). Some evidence of criterion-related validity was established by examining relationships between cognitive emotion regulation strategies and measures of depression, fearfulness, and worry. Considerable variance in pathological symptoms could be explained by use of cognitive emotion regulation strategies, similar to findings of previous studies using the original CERQ. For example, self-blame and catastrophizing had strong relationships with all three indicators of psychopathology, while rumination showed strong relationships to worry and fearfulness. In regard to apparently more adaptive strategies, positive reappraisal and positive refocusing exhibited a protective factor with negative relationships to measures of psychopathology. In a more recent study, cognitive coping strategies also explained a large amount of variance between anxiety-disordered and non-anxious children (Legerstee, Garnefski, Jellesma, Verhulst, & Utens, 2010). The two groups of children differed most, for example, on the strategies of castastrophizing, rumination, positive reappraisal and refocus on planning, with non-anxious

children reporting greater use of the more adaptive strategies. Authors of the assessment indicated that limitations of their study involving the development the CERQ-k include a lack of opportunity to study content or construct validity. They reported that earlier studies with the original CERQ provided evidence for construct validity (Garnefski et al., 2007).

Measures Completed by Parents

Socio-Demographic Information. In order to report the demographic characteristics of the sample, data were obtained from a demographic survey completed by parents. Specifically, the following data were collected for each youth participant: age, gender, race, ethnicity, grade in school, type of cancer, and time since diagnosis (see Appendix E). Data for each parent participating in the study were collected as well, including the parent's age, gender, race, ethnicity, and level of education. Additionally, parents responded to questions about their children's school attendance, enrollment in special education, and grade promotion.

Marlowe-Crowne Social Desirability Scale (MCSDS; Crowne & Marlowe, 1960). The Marlowe-Crowne Social Desirability Scale (MCSDS) was designed to measure the tendency of an individual to respond in a socially desirable (or undesirable) manner (Crowne & Marlowe, 1960). It was originally developed using undergraduate students, and is still most typically used with adults (Beretvas, Meyers, & Leite, 2002). Items for the scale were selected which would identify behaviors that were culturally sanctioned, but improbable of occurrence, and were required to have minimal pathological implications if the respondent replied in either a socially desirable or undesirable direction. The final form of this full-scale assessment consists of 33 items presented in a true/false format. Eighteen of these items are socially desirable but uncommon, indicating a stronger need to be perceived in a socially approved manner when "true" is selected (e.g., "I have never intensely disliked someone.") The remaining 15 items are

undesirable but uncommon behaviors, which indicate a stronger need to be viewed in a socially desirable manner when "false" is selected (e.g., "I don't find it particularly difficult to get along with loudmouthed, obnoxious people.") For scoring purposes, the 18 socially desirable items are keyed true, while the undesirable items are keyed false. Responses to items keyed true are scored as 1 for True and 0 for False. Items keyed "false" are reverse scored, so that computation of scores is simple addition, with possible scores ranging from 0 to 33. Higher scores are indicative of a tendency towards socially desirable responding (Crowne & Marlowe, 1960).

The MCDS is a widely used measure of social desirability (Hancock & Phipps, 2006; Loo & Lowen, 2004). In fact, Beretvas, Meyers, and Leite (2002) identified it as the most commonly used measure of social desirability, reporting results of a database search (PsycINFO, ERIC, Sociological Abstracts, and Social Sciences Abstracts databases) which indicated its use in 1,069 articles and dissertations. This MCSDS has well-established validity and reliability (Crowne & Marlowe, 1960; Crowne & Marlowe, 1964). The internal consistency coefficient for the final scale was reported as .88 (Crowne & Marlowe, 1960). Internal consistency has been demonstrated in additional studies (e.g., .75, Loo & Loewen, 2004; .82, Reynolds, 1982; .85, Strahan & Gerbasi, 1972). A test-retest correlation of .89 was obtained at a one-month interval (Crowne & Marlowe, 1960). Test-retest reliability over a one week period was reported by Fisher (1967) as .84. In a meta-analysis, using a mixed effects model analysis, Beretvas et al. (2002) reported that the score reliability on the full-scale MCSDS was predicted to be .80 for women and .70 for men. Construct validity has been demonstrated with high scorers on the MCSDS responding more to social reinforcement and social influence (Crowne & Marlowe, 1964). A significant correlation with another self-deception measure, the Edwards Social Desirability Scale (Edwards, 1957) was also reported (Crowne & Marlowe, 1960). The scale

authors provide a case for discriminant validity based on the stronger correlations between MCSDS and the Edwards Social Desirability Scale, than between the MCSDS and scores on the Minnesota Multiphasic Personality Inventory (MMPI; Leite & Beretvas, 2005).

While the MCSDS was originally developed as a measure of social desirability, there is evidence of its utility as a measure of defensiveness (Crowne & Marlow, 1960; Weinberger et al., 1979). Further, this measure effectively discriminates between individuals with a low anxious adaptive style and those with a repressive adaptive style, within the adaptive style paradigm (Weinberger et al., 1979). For the purposes of this study, the MCSDS was used in conjunction with the STAI to categorize parent participants' adaptive styles.

State Trait Anxiety Inventory (STAI; Spielberger, 1983). The State Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970) was originally developed as a self-report measure of anxiety in adults, which includes two separate scales to differentiate between state anxiety (transitory emotional condition) and trait anxiety (relatively stable anxiety proneness). The original STAI (i.e., Form X) was revised in 1983, which resulted in the replacement of several items which were deemed to be more closely related to depression than anxiety, so that the revised version (i.e., Form Y) provides a "purer" measure of anxiety (Spielberger, 1985). Additional revisions were made to items which had marginal psychometric properties for high school students of lower socioeconomic status (i.e., "anxious" was changed, as it was perceived to mean "eager") or whose meaning had shifted over time since original development (i.e., "high strung" may have been perceived to be related to drug use; Spielberger, 1985).

Similar to the original version, the revised measurement consists of two scales to provide scores for both state and trait anxiety. The 20-item state anxiety scale measures feelings (e.g., calm, tense) at a particular moment in time. Individuals are required to rate each feeling on a 4-

point intensity scale ranging from "not at all" to "very much so." The 20-item trait anxiety scale measures how individuals generally feel (e.g., confident), with individuals rating items on a 4-point frequency scale ranging from "almost never" to "almost always." Several items on the two scales are quite similar but reflect the difference between general feelings (trait; e.g., "I am content") and feelings at a particular moment (state; e.g., "I feel content"). This difference is also distinguished in the instructions for completing the assessments, in which the trait anxiety scale instructs individuals to answer based on how they "generally feel" whereas the state scale instructs individuals to answer based on how they feel "right now, that is, at this moment." The Trait and State scales each contain two factors, labeled "anxiety-present" (e.g., "I feel upset") and "anxiety-absent" (e.g., "I feel at ease") (Grös, Antony, Simms, & McCabe, 2007; Spielberger, 1983). The key terms of 10 of the state scale items and 11 of the trait scale items reflect the presence of anxiety, while remaining items reflect the absence of anxiety.

For the purposes of this study, only the trait anxiety scale (STAI Form Y-2) was administered as a measure of subjective distress, consistent with previous research of the adaptive style paradigm. This measure was used in conjunction with MCSDS scores to categorize parent participants' adaptive style. A single score for the trait scale is calculated by summing weighted scores for each item. Items are weighted by keying items in a positive direction when they reflect the presence of anxiety, and in the opposite direction when they reflect the absence of anxiety (i.e., for this 4-point rating scale, ranging from 1-4, negatively scored items would convert 1 to 4, 2 to 3, 3 to 2, and 4 to 1; Vigneau & Cormier, 2008). Thus higher scores reflect higher levels of anxiety.

The STAI is one of the most commonly used measures of anxiety (Mind Garden, 2011; Spielberger, 1983). Spielberger (1985) reported that he had compiled a bibliography of research

using the STAI which included over 2,000 publications prior to 1983. Additionally, he reported in 1985 that the STAI had been used in more than 225 published studies each year in the five years after the compilation of the bibliography. A review of the PsychLit database from 1987 to 1992, revealed an additional 1,087 articles which used the STAI (Condon, 1993), and a search of the PsycInfo database from 1990 to 2000 yielded 908 articles in the English language citing use of the full-scale, unmodified version of the STAI (Barnes, Harp, & Jung, 2002). The STAI has been adapted in more than 40 languages, including Spanish, Turkish, Japanese, Arabic, and Dutch (Barnes et al., 2002; Mind Garden, 2011).

The STAI has well-established psychometric properties. Although the revised (Form Y) version has superior psychometric properties, it is highly correlated with the original version (ranging from .96 to .98). Thus research based on Form X is often generalized and applied to Form Y (Condon, 1993). The factor structure for the revised form is very stable and more consistent than the original form, with correlations between corresponding factors of .92 to .95 (Spielberger & Vagg, 1984). Exploratory factor analyses revealed strong empirical support for the distinction between state and trait anxiety as independent factors (Spielberger & Vagg, 1984). Test-retest coefficients at three time intervals (1 hour, 20 days, and 104 days) were reported in the 1970 STAI manual as .84 for men and .76 for women on the trait scale, and were lower for the state scale (.33 for men, .16 for women) (Barnes et al., 2002). Higher coefficients on test-retest reliability of the trait scale are consistent with the notion that trait anxiety is longstanding, while state anxiety is more transient. Internal consistencies for the two scales were more similar, with state scale scores ranging from .83 to .92, and trait scale scores ranging from .86 to .92 (Barnes et al., 2002). Spielberger (1983) reported alpha coefficients of .90 for the revised trait scale and .93 for the revised state scale. Test-retest coefficients were again

higher for the revised trait scale (.73 to .86) than the revised state scale (.16 to .62). Metzger (1976) also reported higher test-retest coefficients at a 21-day interval for trait anxiety scores (.97) than for state anxiety scores (.45).

Construct validity has also been demonstrated with higher state anxiety scores in stressful situations (i.e., after taking an exam) and lower state anxiety scores in non-stressful or relaxing situations (i.e., after relaxation training). Responses to trait anxiety items were impervious to stress and remained stable over time (Metzger, 1976; Spielberger, 1985; Spielberger & Vagg, 1984). Construct validity of the trait scale has been demonstrated with higher scores of neuropsychiatric patients than controls, and higher scores among individuals diagnosed with anxiety neurosis and depressive reactions than individuals with other psychiatric diagnoses (Spielberger, 1985). Further, individuals who were diagnosed with sociopathic disorders (commonly characterized by an absence of anxiety) had substantially lower scores on the trait anxiety scale than individuals diagnosed with any other psychiatric disorder (Spielberger, 1985). Concurrent validity has been demonstrated by significant correlations with the Manifest Anxiety Scale (Taylor, 1953) and the IPAT Anxiety Scale (Cattell & Schier, 1961)(Spielberger & Vagg, 1984). Additionally, correlations of the trait anxiety scale (form X) with the TMAS and ASQ ranged from .70 to .85 (Spielberger, 1985).

Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001). The Child Behavior Checklist (CBCL) was designed to assess the incidence and degree of behavioral and emotional difficulties, as well as social competencies in children ages 4 through 16 years (Achenbach & Edelbrock, 1991). This assessment has been widely used in pediatric cancer research (e.g. Gerhardt et al., 2007; Kazak et al., 1994; Morris et al., 1997; Mulhern, Wasserman, Friedman & Fairclough, 1989; Noll et al., 1997). The CBCL school-age form (for ages 6-18

years) consists of 113 items pertaining to behavior problems, scored on a 3-point scale indicating whether items are not true, sometimes true, or often true of the child, currently or within the previous 6 months. Social competency is also assessed based on an additional 20 items identifying the amount and quality of children's participation in activities, social involvement and academic performance. Forms are available for completion by children, parents, and teachers. For the purposes of this study the parent report form was used for school-aged children (Achenbach & Rescorla, 2001).

Eight narrow-band subscales are designed to identify internalizing and externalizing problems: Withdrawn/Depressed, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Rule-Breaking Behavior, and Aggressive Behavior (Achenbach, 2011). Six DSM-IV scales are also included on the 2001 revision of the CBCL. These scales are: Affective Problems, Anxiety Problems, Somatic Problems, Attention Deficit/Hyperactivity Problems, Oppositional Defiant Problems, and Conduct Problems. Additionally, four subscales have been identified through factor analysis, so that scores are calculated for three global broadband behavior ratings (Total Behavior, Internalizing Behavior, and Externalizing Behavior) and for Social Competence. Social competence items are scored for three categories: Activities, Social, and School. A total competence score is computed only for children six years or older, and only if all social competence scale scores are completed. The school subscale includes a set of items which assess the child's participation in special education, repetition of grade, or presentation of school problems. Additionally, academic performance is assessed with parent rating on a 4-point Likert scale (i.e., failing, below average, average, and above average) of the child's achievement across subject areas. For the purposes of this study,

scores were calculated for all four scales (Total Behavior, Internalizing Behavior, Externalizing Behavior, and Social Competence) and for the school subscale.

To control for differences in gender and age, behavior problem items are scored separately for sexes and for ages of 4 to 5, 6 to 11, and 12 to 18. Scores are reported as T scores, with a mean of 50 and SD of 10. T scores above 70 are considered to be in the clinical range, while scores falling between 67 and 70 are considered to be in the borderline clinical range. For the social competence scale scores, however, higher T scores reflect greater overall functioning.

The CBCL was originally normed on a nationally representative sample of clinical and nonclinical children ages 4 to 16 years, with psychometric properties that have been well-established (Achenbach & Edelbrock, 1991). Psychometric properties of the revised version have been reported with children ages 6-18 years (Achenbach & Rescorla, 2001). Test-retest reliability of parents' ratings for specific problems at one week intervals was .95, and for competencies was 1.0 (Achenbach & Rescorla, 2001). Test-retest reliability of scale scores at mean intervals of 8 to 16 days was also high, with correlations of .91 for Total Competence and .94 for Total Problems. For the CBCL over 12 and 24 months, mean correlations were .70 and .61, respectively, on the competence scales, and .74 and .70 on the empirically based problem scales. Cross-informant agreement revealed correlations of .69 between pairs of parents for the competence scales, .76 for the problem scales, and .73 for the DSM-oriented scales. These are all higher than mean cross-informant correlations found in meta-analyses of other instruments (.59 between pairs of parents). Internal consistency was demonstrated with moderately high alphas ranging from .63 to .79 for the competence scales and .78 to .97. Alphas ranged from .72 to .91 on the DSM-oriented scales.

Evidence for the validity of the CBCL also has been substantiated (Achenbach & Edelbrock, 1991). Content validity was demonstrated by the ability of almost all CBCL items to discriminate between clinical (referred) and non-clinical (nonreferred) children. Quantitative scaled scores also discriminated between referred and nonreferred children, indicating criterion-related validity. Construct validity was supported by correlations of CBCL with the Conners Parent Rating Scale, with correlations ranging from .59 to .86, and correlations with the Quay-Peterson Revised Behavior Problem Checklist (Conners, 1989), with correlations ranging from .52 to .88 (Achenbach, 1991).

Procedure

In order to maintain ethical standards in conducting research, Institutional Review Board approval was sought from the University of South Florida (Pro00013749). After IRB approval was received (see Appendix F), facilitators from participating agencies disseminated information to potential participants on-site, by email or mail, and/or by social media (see Appendices K and L). The PI's contact information was included in the information, so that individuals who were interested in learning more about the study were able to directly contact the PI. Once contacted, the PI was able to further explain the study, discuss requirements for participation, review consent/assent forms, and answer any questions that potential youth and parent participants had. These telephone conversations occurred between the PI and each participant dyad (approximately 10- 15-minutes per telephone call). A letter explaining the nature of the research project to youth (see Appendix G) and to the participating parent (see Appendix H), assent form (see Appendix I), consent form (see Appendix J), and measures were sent to the youth participants and parents who agreed to participate. They were also provided the researcher's contact information to use if they had questions about the study.

Youth and primary caregiver participants were requested to return the signed assent and consent forms and completed measures within one week of receipt in separate self-addressed, stamped envelopes which were provided by the PI. The PI informed the participants that, if they were not able to read or complete the forms independently, the researcher would meet with those participants individually, in person or by telephone, to assist in completion of the measures. No participants requested this assistance. A follow-up phone call was made by the PI to participants who had not returned the forms within two weeks. As an incentive to participate in the study, participants were offered ($10) gift cards and had the opportunity to enter a random drawing for additional gift cards (i.e. restaurants, stores, gas stations). Initial gift cards were mailed to each participant within one week of receipt of his/her completed packet of assessments. Random drawings for the gift card raffle occurred, and these gift cards were mailed after every 30th dyad had completed a set of measures. One hundred percent of packets that were mailed to participants were completed and returned to the PI. Completion of measures occurred over a period of 10 months.

As confidentiality and independent completion of surveys were crucial components to this study, several procedures were incorporated to address these components. The importance of independent survey completion was emphasized when the study was explained to potential participants, and was reiterated in the introductory letters to participants included in the survey packets (Appendices G and H). Survey completion forms (Appendices K and L) were also included in the survey packets which were signed by each participant confirming that they were the individual completing the survey and that they did so independently. Finally, two self-addressed stamped envelopes were included in each packet. One was marked “youth” and the

other was marked “caregiver.” Participants were instructed to place their completed surveys in the appropriate envelope, seal them and sign across the flap to help maintain confidentiality.

Research Design

A nonexperimental research design was used in this study. This type of design is most appropriate for the current study as participants could not be randomly assigned to groups and the independent variable was not manipulated (Johnson & Christensen, 2004). Participants were assigned to adaptive style groups based on the results of assessments used to identify adaptive style (STAIC and CSD for children; STAI and MCSDS for parents). The nonexperimental research design does not allow for control of potential extraneous variables; therefore, observed relationships between variables may be partially or fully spurious (Johnson, 2001; Johnson & Christensen, 2004).

Statistical Analyses

In order to answer the research questions, several statistical procedures were used to analyze the data. Preliminary analyses (i.e., frequency distributions and histograms) were generated for each group to inspect for outliers, examine residuals, and check for normality. Descriptive analyses were conducted, including the calculation of means, standard deviations, and additional descriptive data (i.e., ranges, frequency distributions, skew, etc.). Descriptive data are reported for each of the variables, including demographic variables, adaptive style category, subjective well-being, psychosocial adjustment, and school functioning. Group differences on adaptive style measures were assessed using analysis of covariance, with age, gender, and race included as covariates. Strengths of associations were calculated to examine relationships between child and parent adaptive styles. Group comparisons were conducted using chi-square to determine whether or not there was a difference between children categorized with different

adaptive styles on remaining education-related variables (i.e., participation in special education and grade promotion). An ANOVA was conducted to determine whether or not there was a difference between children categorized with different adaptive styles on subjective well-being. A Multivariate Analysis of Variance (MANOVA) was conducted to determine whether or not there was a difference between children categorized with different adaptive styles on psychosocial adjustment and several education-related variables (i.e. school attendance, CBCL subscale items). Regressions were conducted to determine whether adaptive styles, coping strategies, or a combination of adaptive styles and coping strategies best predicted outcomes on each of the outcome variables.

An ANOVA was selected based on the need to compare a single continuous variable (composite subjective well-being score) on a four independent group categorical variable. There are three assumptions associated with ANOVA that were examined before the analysis was conducted: independence, normality, and homogeneity (Stevens, 2002). Independence is assumed as participants completed the subjective well-being measures independently. However, a random sample could not be obtained for this study. To assess normality, skewness and kurtosis were examined. Homogeneity of variances was tested; Welch modification was used when ANOVA was not robust.

A MANOVA was selected based on the need to compare multiple continuous dependent variables (psychosocial adjustment, and school attendance, and CBCL school score) on a four independent group categorical variable (high anxious, low anxious, defensive high anxious, repressor). As with the ANOVA, the three assumptions associated with MANOVA are independence, normality, and homogeneity (Stevens, 2002). In regard to observation independence, it was not expected that participant responses would be affected by others, as the

measures were completed independently. However, a random sample could not be obtained for this study. Univariate normality was tested by using box plots to look for outliers and by examining skewness and kurtosis values for each group across dependent variables. Multivariate normality was tested by calculating Mahalanobis' Distance to look for outliers and by examining skewness and kurtosis. The assumption of equal covariance matrices was also tested to determine the appropriateness of proceeding with the MANOVA.

Missing Data

In the case of missing data, participants were included if youth participants completed and returned the CSD and STAIC, and if one other measure was completed. All participants met these criteria. Completion of a measure was determined according to the scoring protocols for each measure (e.g., 3 or more missing items would render the STAIC incomplete, as this number of missing responses reduces validity of the measure; Spielberger, 1973). All measures returned met their respective completion criteria.

CHAPTER FOUR:

RESULTS

The purpose of this chapter is to present the results of analyses conducted to answer the study research questions. First, results of the preliminary analyses are presented. Next, descriptive statistics are discussed. Finally, each of the research questions is addressed with the results from the specific analyses conducted to address them.

Preliminary Analyses

Treatment of the Data

All measures were hand scored twice by the researcher, except the Child Behavior Checklist, which has a computer scoring program. The researcher entered all data into a Microsoft Excel Document (Microsoft Excel, 2010). Data were imported from the Excel Document into Statistical Analysis Software (SAS) libraries (Statistical Analysis Software Version 9.4, 2015).

Independent interrater checks were performed by a team of three certified school psychologists on 10% of the hand scored batteries. Only one inconsistency arose. The problem was discussed, and it was determined the colleague had counted a response that been crossed out by the participant. One hundred percent of the Child Behavior Checklists were verified by a second data entry process required by the computer scoring program.

Adaptive Style Group Assignment

Once measures were scored and verified, participants were assigned to one of four adaptive style categories. The classification of adaptive style was modeled after previous

studies, using scores from the CSD and STAIC for children, and scores from the MCSDS and STAI for parents (e.g., Hancock & Phipps, 2006; Phipps et al., 2006; Phipps & Srivastava, 1997; Phipps & Steele, 2002). To determine adaptive style in children, classifications were created on a 2x2 table, with a median split (based on assessment norms) on subjective distress and an upper quartile split on defensiveness. These splits were calculated in Excel. CSD cut-offs are age-corrected, as failure to correct for age skews distribution of adaptive styles with an excess of younger children classified as repressors (Hancock & Phipps, 2006). Age-correction is conducted by dividing participants into three age categories based on means from the individual study sample, and calculating cut-off scores for each age group (e.g., Phipps et al., 2006; Phipps & Srivastava, 1997). These scores were calculated in Excel, with a cutoff of 21 for children aged 9-10, 16 for those aged 11-13, and 15 for those aged 14-17. Participants with a score at or above the 75th percentile on the CSD (youth) or MCSDS (parents, score = 25), and below the median on the STAIC (youth, score = 30.5) or STAI (parents, score = 38) were classified as Repressors. Low Anxious individuals were defined as those scoring below the 75th percentile on the CSD or MCDS and below the median on the STAIC or STAI. Those who scored below the 75th percentile on the defensiveness measures and those at or above the median on the anxiety scales were categorized as High Anxious. Participants in the Defensive High Anxious category were those whose scores were at or above the median on the anxiety scales and at or above the 75th percentile on the defensiveness measures.

Composition of Subjective Well-Being Variable

Aggregate Social Well-Being (SWB) scores were also created, based on the scores of the PANAS-C and SLSS. This aggregation was consistent with previous research on subjective well-being (Kasser & Sheldon, 2002; Shaffer, 2006; Suldo, Thalji & Ferron, 2011). To obtain an

aggregate measure of well-being, PANAS-C and SLSS scale scores were standardized and a Subjective Well-Being score was computed by adding scores for life satisfaction and positive affect, then subtracting standardized negative affect scores. Analyses were conducted using the aggregate SWB index.

Descriptive Analyses

Demographic Characteristics

Demographic characteristics of the youth participants are presented in Table 2. The mean age of the youth participants was 12.38 (SD=2.32). The majority of youth participants were female. Leukemia, which is the most common type of childhood cancer, was also the most common type of cancer diagnosed in this sample. The remaining participants were diagnosed with lymphoma, cancers of the brain/nervous system, or other less common types of cancer (e.g., soft tissue tumors, bone, or kidney). The majority of participants had completed treatment. Approximately half of the participants had never received Exceptional Student Education Services. Of the remaining participants, 38.9% began ESE services after diagnosis. Most participants (94%) had been promoted to all expected grade levels since diagnosis.

Demographic characteristics of parent participants are presented in Table 3. The majority of parent participants were female. Most participants identified with a Non-Hispanic ethnicity and white race. The majority of participants graduated from high school and earned college degrees.

Distribution of Scores

Descriptive analyses were conducted for the each of the measures. These statistics are provided in Table 4. For the examination of univariate normality, skewness and kurtosis for each variable were calculated. The dataset was also examined graphically using boxplots. With

Table 2

Demographics of Youth Participants

Demographic Variable	*n*	Percentage
Gender		
Boys	80	44.4
Girls	100	55.6
Ages		
9	20	11.1
10	28	15.6
11	29	16.1
12	22	12.2
13	16	8.9
14	23	12.8
15	21	11.7
16	17	9.4
17	4	2.2
Child Ethnicity		
Hispanic	48	26.7
Non-Hispanic	131	72.8
Preferred not to answer	1	.6
Child Race		
Asian/Pacific Islander	10	5.6
Black	18	10.0
White	112	62.2
Mixed	18	10.0
Other (Hispanic)	21	11.7
Preferred not to answer	1	.6
Type of Cancer		
Leukemia	133	74.3
Brain/Nervous System	11	6.1
Lymphoma	8	4.0
Other	27	15.0
Did not answer	1	0.6
In Treatment or Completed		
In Treatment	74	41.1
Completed	106	58.9
Exceptional Student Education		
Began After Diagnosis	70	38.9
Have Never Received Services	93	51.7
Prior To and After Diagnosis	17	9.4
Grade Promotion		
Promoted Since Diagnosis	170	94.4
Retained Since Diagnosis	10	5.6

Note: N = 180.

Table 3

Demographics of Parent Participants

Demographic Variable	*n*	Percentage
Parent Gender		
Male	20	11.1
Female	160	88.9
Parent Ethnicity		
Hispanic	45	25.0
Non-Hispanic	134	74.4
Preferred not to answer	1	.6
Parent Race		
Asian/Pacific Islander	10	5.6
Black	18	10.0
White	142	78.9
Other (Hispanic)	9	5.0
Preferred not to answer	1	.6
Parent Education		
Attended Some High School	1	.6
Graduated High School	39	21.7
Obtained GED	2	1.1
Technical School	29	16.1
Associate's Degree	38	21.1
Bachelor's Degree	45	25.0
Master's Degree	21	11.7
Graduate School/Licensed Professional	2	1.1
Other (Attended Some College)	2	1.1
Did Not Answer	1	.6

Note. N = 180.

the exception of the CERQ-k scores for Self-Blame and Other-Blame, all other obtained values for skewness and kurtosis fell within the acceptable ranges (-2.0 to 2.0 for skewness, -3.0 to 3.0 for kurtosis), suggesting approximate normal distribution of scores for these remaining variables.

With skewness values greater than 2.0, the distributions for Self-Blame and Other-Blame are considered positively skewed. The positive kurtosis values for Self-Blame and Other-Blame suggest that the distributions for these variables are leptokurtic.

Table 4

Descriptive Statistics of Scores on Youth- and Parent-Reported Measures

	Mean	*SD*	Skewness	Kurtosis	Range	
					Low	High
Adaptive Style Measures						
CMSDS	20.68	6.03	-.57	-.40	5.00	30.00
STAI	37.22	8.86	.34	-.48	21.00	59.00
CSD	12.91	49.8	.41	-.71	4.00	25.00
STAIC	32.85	8.83	.77	-.31	20.00	55.00
Subjective Well-Being Measures						
PANAS – PA	3.46	.98	-.51	-.59	1.20	5.00
PANAS – NA	1.76	.63	.72	-.74	1.00	3.20
SLSS	4.64	1.08	-.57	-.46	2.00	6.00
SWB	.08	2.19	-.95	1.30	-4.56	3.64
Child Behavior Checklist Scores						
Social Competence	40.67	9.12	-.25	-.62	21.00	62.00
School Competence	48.49	8.72	-1.34	.58	25.00	55.00
Internalizing Problems	55.83	11.79	.57	-.75	34.00	82.00
Externalizing Problems	44.74	9.40	.98	.52	33.00	71.00
Total Problems	48.91	10.06	.81	-.55	33.00	72.00
Cognitive Emotion Regulation Questionnaire						
Self-Blame	5.76	3.35	3.24	10.5	4.00	20.00
Acceptance	10.21	3.53	.53	-.39	4.00	20.00
Rumination	8.66	3.79	.43	-.70	4.00	20.00
Positive Refocusing	12.33	4.30	-.17	-.96	4.00	20.00
Planning	11.31	4.25	.61	-.35	4.00	20.00
Positive Reappraisal	12.27	4.42	.04	-.82	4.00	20.00
Putting In Perspective	10.91	4.28	.28	-.82	4.00	20.00
Catastrophizing	6.75	2.48	.75	-.12	4.00	14.00
Other-Blame	4.91	1.49	2.28	5.11	4.00	11.00

Correlations between Measures

To examine relationships between measures, correlation coefficients were calculated between each variable. Correlation coefficients ranging from -1 to +1 provide information about the strength and direction of the relationship between the variables. The correlations among all variables included in the analyses are presented in Table 5.

Research Question One

The first research question examined the representation of four adaptive styles, as measured by the Children's Social Desirability (CSD) scale and the State-Trait Anxiety Index for Children (STAIC), in a sample of youth who had been diagnosed with pediatric cancer.

Percentages of youth participants whose adaptive style was categorized as high anxious, low anxious, defensive high anxious, or repressive were calculated to determine prevalence rates. Ninety-five percent Confidence Intervals (CI) were also calculated. Prevalence rates and exact CIs are presented in Table 6.

The demographic characteristics for youth participants in each of the four groups were calculated and are presented in Table 7. Most boys were identified with a Repressive or Low Anxious adaptive style, while most girls were most frequently identified with High Anxious adaptive style. Lower percentages of Asian/Pacific Islander and black youth participants identified with Repressive adaptive style than the white participants. Youth of mixed race were predominantly identified with Repressive or Low Anxious adaptive style. While youth diagnosed with leukemia had more similar distributions across Repressive, Low Anxious and High Anxious adaptive styles, all youth diagnosed with brain/CNS cancers, and most youth diagnosed with lymphoma or other cancers, were identified with a High Anxious adaptive style.

Research Question Two

This question examined the representation of four adaptive styles, as measured by the State Trait Anxiety Inventory (STAI) and the Marlowe-Crowne Social Desirability Scale (MCSDS) in a sample of parents whose children had been diagnosed with pediatric cancer. Percentages of parent participants whose adaptive style is categorized as high anxious, low anxious, defensive high anxious, and repressive were calculated to determine prevalence rates.

Table 5

Correlations among Variables Included in the Analyses

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1 Soc	–																				
2 Sch	.48 ***	–																			
3 Int	-.21 **	-.46 ***	–																		
4 Ext	-.21 **	.08	.22 **	–																	
5 CMSDS	-.08	.03	.10	.23 **	–																
6 STAI	-.54 ***	-.12	.17 *	.24 **	-.34 ***	–															
7 PA	.25 **	-.06	-.26 **	-.09	.24 **	-.71 ***	–														
8 NA	-.14	-.25 **	.43 ***	-.01	-.03	.28 **	-.59 ***	–													
9 SLSS	-.13	.28 **	-.33 ***	.14	.05	-.18 **	.35 ***	-.60 ***	–												
10 SWB	.10	.15 *	-.36 ***	.04	.10	-.47 ***	.74 ***	-.75 ***	.74 ***	–											
11 CSD	-.12	.06	-.18 *	-.18 **	.28 **	-.19 **	.40 ***	-.44 ***	.36 ***	.40 ***	–										
12 STAIC	-.17 *	-.61 ***	.46 ***	.01	-.06	.18 **	-.17 *	.70 ***	-.60 ***	-.49 ***	-.41 ***	–									
13 SB	-.34 ***	-.57 ***	.28 **	-.03	-.03	.40 ***	-.30 ***	.42 ***	-.38 ***	-.41 ***	-.20 **	.60 ***	–								

Table 5

Correlations among Variables included in the Analyses, continued

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
14 Acc	.24**	-.19**	.08	.01	-.04	-.35***	.33***	.12	-.05	.11	-.33***	.26**	.13	–							
15 Rum	-.03	-.36***	.15*	.03	.29***	-.28**	.46***	.07	-.13	.18*	.22**	.43***	.33***	.08	–						
16 PRef	.26**	.04	-.28**	-.11	.20**	-.48***	.76***	-.50***	.20**	.53***	.38***	-.15*	-.14	.18**	.36***	–					
17 Pl	.31***	.12	-.38***	-.03	.09	-.44***	.68***	-.52***	.33***	.58***	.33***	-.26**	-.09	.24**	.40***	.83***	–				
18 PRea	.34***	.11	-.37***	-.08	-.08	-.45***	.69***	-.49***	.24**	.54***	.25**	-.17*	-.16*	.11	.36***	.81***	.84***	–			
19 PiP	.35***	.15*	-.30***	-.10	-.26**	-.28**	.42***	-.16*	.04	.23*	.01	.02	-.33***	.37***	-.15*	.48***	.37***	.53***	–		
20 Cat	.03	-.16*	.18*	-.08	-.02	.11	-.07	.43***	-.54***	-.37***	-.01	.50***	.19**	-.07	.25**	.14*	-.14	.02	.22**	–	
21 OB	-.06	-.15*	-.05	.12	-.04	.01	.26**	-.18*	.07	.21**	.30***	-.05	.03	-.16*	.44***	.27**	.36***	.39***	.02	.27**	–

Note. Soc=Social Competence, Sch=School Scale Score, Int=Internalizing Behaviors, Ext=Externalizing Behaviors, PA=Positive Affect, NA=Negative Affect, SB=Self-Blame, Acc=Acceptance, Rum=Rumination, PRef=Positive Refocusing, Pl=Planning, PRea=Positive Reappraisal, PiP=Putting in Perspective, Cat=Catastrophizing, OB=Other Blame. *Significant at α=.01 **Significant at α=.05, ***Significant at α<.0001

Table 6

Distribution of Adaptive Style Categories in Youth Participants

Adaptive Style	Total	%	CI (95%) Lower	Upper
Repressors	38	21.11	15.39	27.81
Low Anxious	52	28.89	22.39	36.10
High Anxious	72	40.00	32.78	47.55
Defensive High Anxious	18	10.00	6.04	15.34

Table 7

Demographic Characteristics by Youth Adaptive Style Group

	Repressive		Low Anxious		High Anxious		Defensive High Anxious	
Demographic Variables	n	%	n	%	n	%	n	%
Gender								
Boys	26	33	34	43	11	14	9	11
Girls	12	12	18	18	61	61	9	9
Child Ethnicity								
Hispanic	12	24	14	28	21	42	3	6
Non-Hispanic	26	20	38	29	51	39	14	11
Child Race								
Asian/Pacific Island	1	10	4	40	4	40	1	10
Black	2	11	7	39	8	44	1	6
White	26	23	31	28	42	38	13	12
Mixed	6	32	7	37	3	16	0	0
Other (Hispanic)	3	13	3	13	15	65	2	9
Type of Cancer								
Leukemia	32	24	45	34	47	35	9	7
Brain/CNS	0	0	0	0	11	100	0	0
Lymphoma	2	25	1	13	5	63	0	0
Other	3	11	6	22	9	33	9	33
Treatment Status								
In Treatment	10	13	19	25	37	49	9	12
Completed	28	27	33	31	35	33	9	9
ESE Services								
After Diagnosis	12	17	14	20	44	63	0	0
Never Received	26	28	29	31	28	30	10	11
Prior To & After	0	0	9	53	0	0	8	47
Grade Promotion								
Promoted	38	22	52	31	63	37	17	10
Retained	0	0	0	0	9	90	1	10

Note: Percentages are row percentages.

Ninety-five percent Confidence Intervals (CI) were also calculated. Prevalence rates and exact CIs are provided in Table 8.

Table 8

Distribution of Adaptive Style Categories in Parent Participants

			CI (95%)	
Adaptive Style	Total	%	Lower	Upper
Repressors	43	23.89	1.79	3.08
Low Anxious	46	25.56	1.94	3.26
High Anxious	82	45.56	3.81	5.31
Defensive High Anxious	9	5.00	2.31	9.28

Descriptive statistics including the number of participants categorized with each adaptive style, gender, race, child's diagnosis, child's stage of treatment, and education level were calculated to determine prevalence rates. These statistics are presented in Table 9. As seen in this table, High Anxious was the most common adaptive style in both male and female parents, with almost half of each identified with this adaptive style. High Anxious was also the most prevalent adaptive style for Asian/Pacific Island and white parents.

Parents who identified themselves as black or other (Hispanic) were most commonly identified with Repressive adaptive style. Across education levels, High Anxious adaptive style was the most common, Defensive High Anxious the least common, and fairly equal distribution between Repressive and Low Anxious adaptive styles. High Anxious adaptive style was prevalent for parents of children with Lymphoma or the more rare cancers, and was the most common style for parents of children with leukemia. Parents of children with brain/CNS cancers were either Repressive or Low Anxious. While High Anxious adaptive style was most common for all parents, a higher percentage of parents of children still in treatment were identified high anxious. This percentage lowered for parents of children who had completed treatment and the

percentage of parents of children who had completed treatment was somewhat higher than those of children in treatment.

Table 9

Demographic Characteristics by Parent Adaptive Style Group

	Repressive		Low Anxious		High Anxious		Defensive High Anxious	
Demographic Variables	n	%	n	%	n	%	n	%
Parent Ethnicity								
Hispanic	15	33	13	29	17	38	0	0
Non-Hispanic	28	21	33	25	64	48	9	7
Parent Race								
Asian/Pacific Island	0	0	2	20	8	80	0	0
Black	9	50	3	17	3	17	3	17
White	26	18	40	28	70	49	6	4
Other (Hispanic)	8	89	1	11	0	0	0	0
Parent Education Level								
Some high school	0	0	0	0	1	100	0	0
Graduate high school	7	18	11	28	17	44	4	10
Obtained GED	0	0	0	0	2	100	0	0
Technical school	6	21	6	21	15	52	2	7
Associate's degree	11	29	10	26	17	45	0	0
Bachelor's degree	12	27	12	27	18	40	3	7
Master's degree	5	24	7	33	9	43	0	0
Grad school/ Professional license	1	50	0	0	1	50	0	0
Other (some college)	0	0	0	0	2	100	0	0
Child's Cancer Type								
Leukemia	35	26	34	25	56	42	8	6
Brain/CNS	5	45	6	55	0	0	0	0
Lymphoma	0	0	1	13	7	88	0	0
Other	2	7	5	19	19	70	1	4
Treatment Status								
In Treatment	10	13	25	33	39	52	1	1
Completed	33	31	21	20	43	41	8	8

Research Question Three

Question three examined the relationship between youths' adaptive styles and their parents' adaptive styles. In order to determine these relationships, strengths of associations were calculated. Cramer's V was used, as two nominal variables were compared (i.e., parents' four

adaptive styles and youths' four adaptive styles). Coefficients ranging from 0 to +1 provided information about the strength of the relationship between variables. An alpha level of .05 was used to determine statistical significance. The result of this test of association was statistically significant, $\chi 2 = 84.06$, $p < .0001$. Frequency and percentages of the occurrences of children's adaptive styles for each of the parent adaptive styles are presented in Table 11. As is seen in this table, assumptions for utilizing chi-square were not met, as multiple cells have expected counts less than five. Therefore, Fisher's Exact Test also was calculated and the result was statistically significant, $p < .0001$, indicating a relationship between parent and youth adaptive styles. The effect size for this finding was medium, .39 (Cohen, 1988).

Table 10

Descriptive Statistics for Parent Adaptive Style by Youth Adaptive Style

	Youth Adaptive Style			
Parent Adaptive Style	Repressive	Low Anxious	High Anxious	Defensive High Anxious
Repressive	23 (60.53%)	2 (3.85%)	18 (25.00%)	0 (0%)
Low Anxious	10 (26.32%)	9 (17.31%)	27 (37.50%)	0 (0%)
High Anxious	5 (13.16%)	33 (63.46%)	27 (37.50%)	17 (94.44%)
Defensive High Anxious	0 (0%)	8 (15.38%)	0 (0%)	1 (5.56%)

Note. Numbers in parentheses indicate column percentages.

As seen in this table, parents with a Repressive adaptive style were most likely to have children with a Repressive adaptive style, and youth with a Repressive adaptive style were most likely to have a parent with this adaptive style. Parents with a Low Anxious adaptive style most commonly had children with a High Anxious adaptive style, just as youth with Low Anxious adaptive style most commonly had parents with a High Anxious adaptive style. High Anxious parents had fewer children in with Repressive adaptive style than any other adaptive style, and

High Anxious most commonly had parents in the Low or High anxious group. Defensive High Anxious parents predominantly had Low Anxious children, while Defensive High Anxious youth predominantly had High Anxious parents.

Research Question Four

Analysis of Variance

This research question examined any differences in youth who were categorized in high anxious, low anxious, defensive high anxious, and repressive adaptive style categories when compared on the composite subjective well-being score, as determined by scores on the SLSS and PANAS-C. A univariate ANOVA procedure was conducted to compare means of the adaptive style groups on subjective well-being scores and to determine if group mean differences were statistically significant. Data were assessed to ensure that the following statistical assumptions were met:

Independent observations. The observations were assumed to be independent. Each participant was informed of the importance of completing the measures independently and, after completing the measures, signed a document indicating that they had completed the forms independently. Participants each received an envelope to return measures separately from other participants, and they were asked to sign the flap of the envelope to assure that the measures were not seen by other participants.

Normality of population distribution. The examination of box plots, skewness, kurtosis, and descriptive statistics suggested approximately normal distributions.

Homogeneity of variance. To assess validity of this assumption, the sample sizes, standard deviations, and box plots were examined. Sample sizes for each group were unequal and the largest standard deviation (SD = 2.49) was greater than twice the smallest standard

deviation (SD = .82). Standard deviations are reported in Table 11. Box plots also indicated differences in variance. Levene's test was calculated and indicated that the variance between groups was statistically significant ($p < .0001$). Because the assumption of homogeneity appeared to be violated, the Welch's ANOVA (alpha = .05) was used to determine statistical significance between adaptive style groups on subjective well-being scores.

Results of ANOVA. The means and standard deviations are presented in Table 10. The Welch's ANOVA indicated there was a statistically significant difference between groups, $F(3,78.02) = 15.23$, $p < .0001$.

Table 11

Means and Standard Deviations of Subjective Well-Being by Youth Adaptive Style

Adaptive Style	n	Mean	SD
Repressive	38	1.45	1.32
Low Anxious	52	.35	1.32
High Anxious	72	-.99	2.49
Defensive High Anxious	18	.53	.82

Note. N = 180.

Post hoc tests. Because the ANOVA was statistically significant, but variances were unequal, each pair of groups was compared with an unequal variance T-Test. Results of the T-Tests are displayed in Table 12. The following adaptive style pairs were found to be statistically significant using a Bonferroni adjustment (α=.008): Repressive and Low Anxious, $t(88) = -3.91$, $p = .0002$, Repressive and Defensive High Anxious, $t(49.72) = -3.19$, $p=.0025$, Repressive and High Anxious, $t(107.99) = -6.74$, $p < .0001$, Defensive High Anxious and High Anxious, $t(81.49) = 4.34$, $p < .0001$, and Low Anxious and High Anxious, $t(113.29) = -3.88$, $p = .0002$. Specifically, youth with a Repressive adaptive style scored significantly higher on Subjective Well-Being than youth with any other adaptive style, and youth with a High Anxious adaptive

style scored significantly lower on Subjective Well-Being than youth with any other adaptive style.

Research Question Five

Multivariate Analysis of Variance

Question five examined any differences between youth categorized with different adaptive styles on measures of psychosocial adjustment and risk. To determine the existence of

Table 12

T-Test Results Examining Differences Between Groups on Subjective Well-Being

	R x LA	R x HA	R x DHA	LA x HA	LA x DHA	HA x DHA
DF	88	107.99	49.72	113.29	48.12	81.49
t	-3.91	-6.74	-3.19	-3.88	.68	4.34
p	.0002*	<.0001*	.0025*	.0002*	.4983	<.0001*

Note: R=Repressive, LA=Low Anxious, HA=High Anxious, DHA=Defensive High Anxious. Satterwaite was used for all T-Tests that show a decimal value in the degrees of freedom.
* Statistically significant, using Boneferroni adjustment (α=.008).

group mean differences between the four groups (Repressive, Low Anxious, High Anxious, and Defensive High Anxious) on the three dependent variables (Internalizing Behavior, Externalizing Behavior, and Social Competence), a multivariate analysis of variances (MANOVA) was conducted. First, data were analyzed to ensure that the following assumptions were not violated:

Independence of observations. The observations were assumed to be independent. Measures taken to ensure independence were outlined under Question Four above.

Multivariate normality. The examination of box plots, skewness, kurtosis, and descriptive statistics suggested approximately normal distributions. As presented in Table 4, the maximum skewness value for the dependent variables used in this analysis was .98, while the maximum kurtosis value was -.75. Examination of box plots confirmed approximate normality.

Multivariate homogeneity. Box's M-test of homogeneity of within covariance matrices was used to check this assumption. Results of this test indicated that this assumption was violated ($p < .0001$). In order to increase robustness of this violation and control Type I error rate, an alpha level of .01 was used to determine significance of the MANOVA. Additionally, follow-up tests for significant MANOVA results included the use of the Welch adjusted ANOVA for unequal variance and the Satterthwaite adjusted T-Test for pairwise comparisons.

Results of MANOVA. Means and standard deviations are presented in Table 13. Results of the MANOVA revealed a significant multivariate effect for youth adaptive style, Wilks' $\lambda = .62$, $F(9,421)$, $p < .0001$. In order to determine which groups were statistically significantly different, follow-up ANOVAs were conducted. Because the assumption of homogeneity appeared to be violated, the Welch's ANOVA (alpha =.05) was used to determine statistical significance between adaptive style and each of the psychosocial adjustment measures. There was a statistically significant difference between groups for each of the dependent variables: for internalizing behavior, $F(3, 72.75) = 27.81$, $p < .0001$, for externalizing behavior, $F(3, 69.91) = 3.58$, $p = .02$, and for social competence, $F(3, 61.89) = 4.09$, $p = .01$. Results of the Welch's ANOVA for internalizing behavior, externalizing behavior, and social competence are presented in Table 13.

Table 13

ANOVA Results and Means and Standard Deviations for Adaptive Style by Psychosocial Risk/Adjustment Scores

	R (n = 37)		LA (n = 52)		HA (n = 72)		DHA (n = 18)		ANOVA	
	M	SD	M	SD	M	SD	M	SD	F	*p*
Internalizing	49.1	6.6	50.8	8.4	61.4	13.5	62.2	5.9	27.81	<.0001
Externalizing	44.1	8.8	46.6	11.6	44.8	8.4	40.3	5.6	3.48	.0182
Social	38.8	7.1	41.5	9.3	42.6	8.9	34.5	10.3	4.09	.0103

Note: R=Repressive, LA=Low Anxious, HA=High Anxious, DHA=Defensive High Anxious.

Post hoc tests. Because the ANOVA for each dependent variable was statistically significant, post hoc tests were conducted to determine which adaptive style pairs were statistically significant. First, Levene's tests were conducted to test the assumption of homogeneity. Results were statistically significant for internalizing behavior ($p < .0001$) and externalizing behavior ($p = .0056$), indicating unequal variances, but not for social competence. Therefore, each pair of adaptive style groups was compared with an unequal variance T-Test to determine significant differences between groups on the externalizing behavior variable and the on the internalizing behavior variable. For the social competence variable, Tukey's tests were used to determine significant difference between adaptive style groups.

The following adaptive style pairs were found to be statistically significant for internalizing behavior, using a Bonferroni adjustment ($\alpha = .008$): Repressive and High Anxious, $t(106.78) = 6.38$, $p < .0001$, Repressive and Defensive High Anxious, $t(53) = 7.19$, $p < .0001$, High Anxious and Low Anxious, $t(119.68) = 5.38$, $p < .0001$, and Defensive High Anxious and Low Anxious, $t(68) = 5.33$, $p < .0001$. The following adaptive style pair was found to be statistically significant for externalizing behavior, using a Bonferroni adjustment ($\alpha = .008$): Defensive High Anxious and Low Anxious, $t(60.07) = -3.00$, $p = .0039$. Results of these T-Tests are presented in Table 14. Cells with an asterisk indicate adaptive style pairs that were found to be statistically significant. Tukey's tests, conducted for the social competence variable, resulted in one statistically significant pairwise comparison at the .017 level: High Anxious and Defensive High Anxious.

Summary of Research Question Five

Examining the statistically significant group differences in the post hoc test results, it is evident that youth with Repressive or Low Anxious adaptive styles have significantly lower

Internalizing Behavior scores on the CBCL than youth with High Anxious and Defensive High Anxious adaptive styles. The only statistically significant group difference on the Externalizing Behavior measure was between the Low Anxious and Defensive High Anxious group. One statistically significant group difference on the Social Competence scale was observed: between High Anxious and Defensive High Anxious groups, with a higher group mean for the High Anxious group.

Table 14

T-Test Results: Differences Between Groups on Psychosocial Risk Measures

	R x LA	R x HA	R x DHA	LA x HA	LA x DHA	HA x DHA
Internalizing						
DF	87	106.78	53	119.68	68	64.67
t	1.01	6.38	7.19	5.38	5.33	.40
p	.3171	<.0001*	<.0001*	<.0001*	<.0001*	.6896
Externalizing						
DF	87	107	53	88.06	60.07	88
t	.27	.44	-1.64	-.93	-3.00	-2.16
p	.0868	.6583	.1060	.3564	.0039*	.0097

Note: R=Repressive, LA=Low Anxious, HA=High Anxious, DHA=Defensive High Anxious. Satterwaite was used for all T-Tests that show a decimal value in the degrees of freedom.
* Statistically significant, using Bonferroni adjustment (α=.008).

Research Question Six

Question six investigates if there is a difference between youth with different adaptive styles when compared on education outcome variables, including the school scale score of the CBCL, enrollment in special education services, and grade promotion. Because some of the variables that have been selected by the researcher to measure education outcome are continuous and others are categorical, two different statistical procedures were necessary.

CBCL School Score

First, children who are categorized with High Anxious, Low Anxious, Defensive High Anxious, and Repressive adaptive styles were compared on the CBCL school scale score. A univariate ANOVA procedure was conducted to compare means of the adaptive style groups on the CBCL School score, and to determine if group mean differences were statistically significant. First, data were assessed to ensure that the following statistical assumptions were met:

Independent observations. The observations were assumed to be independent. Measures taken to ensure independence were outlined under Question Four above.

Normality of population distribution. The examination of box plots, skewness, kurtosis, and descriptive statistics suggested approximately normal distributions.

Homogeneity of variance. To assess validity of this assumption, the sample sizes, standard deviations, and box plots were examined. Sample sizes for each group were unequal, and the largest standard deviation (SD = 12.69) was greater than twice the smallest standard deviation (SD = 3.47). Standard deviations are reported in Table 15. Box plots also indicated differences in variance. Levene's test was calculated and indicated that the variance between groups was statistically significant ($p < .0001$). Because the assumption of homogeneity appeared to be violated, the Welch's ANOVA ($\alpha = .05$) was used to determine statistical significance between adaptive style groups on subjective well-being scores.

Results of ANOVA. The means and standard deviations are presented in Table 15. The Welch's ANOVA indicated there was a statistically significant difference between groups, $F(3, 59.74) = 16.21$, $p < .0001$.

Table 15

Means and Standard Deviations of CBCL School Score by Youth Adaptive Style

Adaptive Style	n	Mean	SD
Repressors	37	52.49	3.47
Low Anxious	52	52.62	3.75
High Anxious	72	45.03	9.63
Defensive High Anxious	18	42.17	12.69

Post hoc tests. Because the ANOVA was statistically significant, but variances were unequal, each pair of groups was compared with an unequal variance T-Test. Results of these T-Tests are presented in Table 15. The following adaptive style pairs were found to be statistically significant using a Bonferroni adjustment (α=.008): Repressive and Defensive High Anxious, t(18.25) = -3.39, p = .0032, Repressive and High Anxious, t(98.95) = -5.87, p = <.0001, Defensive High Anxious and Low Anxious, t(18.04) = -3.44, p = .0029, and High Anxious and Low Anxious, t(97.99) = -6.08, p = <.0001.

Table 16

T-Test Results Examining Differences between Groups on the School Scale Score

	R x LA	R x HA	R x DHA	LA x HA	LA x DHA	HA x DHA
DF	87	98.95	18.25	97.99	18.04	88
t	.16	-5.87	-3.39	-6.08	-3.44	-1.06
p	.8695	<.0001*	.0032*	<.0001*	.0029*	.2942

Note: R=Repressive, LA=Low Anxious, HA=High Anxious, DHA=Defensive High Anxious. Satterwaite was used for all T-Tests that show a decimal value in the degrees of freedom.
* Statistically significant, using Bonferroni adjustment (α=.008).

Special Education

Children who were categorized with each adaptive style were also compared on participation in special education services. As the researcher was interested in determining any effects of adaptive style on participation in special education services after diagnosis, youth who

received services prior to diagnosis were excluded from this analysis. It would not be expected that students who received services prior to the diagnosis would discontinue services within one year after diagnosis. As expected, of 17 youth who received services prior to diagnosis, all continued services after diagnosis.

Group comparisons were conducted using chi-square tests to determine whether or not there was a significant difference between children categorized with different adaptive styles. The result was statistically significant, $\chi 2 = 21.12$, $p < .0001$. Frequency and percentages of the occurrences of children's adaptive styles for special education participation are presented in Table 17.

Table 17

Standardized Residuals and Descriptive Statistics for Adaptive Style by Special Education

	Special Education		Standardized Residual	
Youth Adaptive Style	Receives	Does Not	Receives	Does Not
DHA	0 (0%)	10 (100%)	-2.83 *	2.83 *
HA	44 (61.1%)	28 (38.9%)	4.17 **	-4.17 **
LA	14 (32.6%)	29 (67.4%)	-1.60	1.60
R	12 (31.6%)	26 (68.4%)	-1.62	1.62

Note: R=Repressive, LA=Low Anxious, HA=High Anxious, DHA=Defensive High Anxious. Numbers in parentheses indicate row percentages.
* $p < .01$ ** $p < .001$

The column percentages indicate that youth with High Anxious adaptive styles were more likely (61.1%) to receive special education services than not (38.9%). Youth in the remaining adaptive style categories were less likely to receive Special Education services, than to receive services. Standardized residuals were also computed to determine which, if any, categories contributed to statistical significance. In the High Anxious x Special Education cells, the standardized residuals were significant ($p <.001$), with $z = 4.17$ for receiving ESE services, $z = -4.17$ for not receiving services. The Defensive High Anxious cells were also significant ($p <$

.01), with z = -2.83 for receiving services and 2.83 for not receiving services. Cramer's V was calculated to determine strength of associations. The effect size for this finding was medium, .36 (Cohen, 1988).

Grade Promotion

Children who were categorized by each adaptive style were also compared on grade promotion. Group comparisons were conducted using chi-square tests. An alpha level of .05 was used to determine statistical significance. Although the result was statistically significant, $\chi 2 = 11.91$, $p = .0077$, the assumptions for utilizing chi-square were not met. As seen in Table 18, multiple cells had expected counts less than five. Therefore, Fisher's Exact Test was calculated and the result was statistically significant, P = .0052. Cramer's V was used to determine strengths of association. The effect size for this finding was small, .26 (Cohen, 1988).

Table 18

Standardized Residuals Descriptive Statistics for Youth Adaptive Style by Grade Promotion

	Grade Promotion		Standardized Residual	
Youth Adaptive Style	Promoted	Retained	Promoted	Retained
DHA	17 (94.4%)	1 (5.6%)	0	0
HA	63 (87.5%)	9 (12.5%)	-3.32	3.32
LA	52 (100%)	0 (0%)	2.07	-2.07
R	38 (100%)	0 (0%)	1.68	-1.68

Note: R=Repressive, LA=Low Anxious, HA=High Anxious, DHA=Defensive High Anxious. Numbers in parentheses indicate row percentages.

Summary of Research Question Six

Results of the post hoc tests pertaining to the School Scale score indicate that youth with Repressive and Low Anxious adaptive styles had significantly better outcomes on this measure than their peers in the High Anxious and Defensive High Anxious groups. A statistically significant association was found between adaptive style and participation in special education,

mainly driven by the Defensive High Anxious group (associated with not receiving services) and the High Anxious group (associated with receiving services). A statistically significant association was also found between adaptive style and grade promotion. The lowest percentage of youth promoted was in the High Anxious category (87.5%). All youth in the Repressive and Low Anxious groups had been promoted since diagnosis.

Research Question Seven

Multivariate Analyses of Variance

Question seven examined any differences between youth categorized with different adaptive styles on measures of coping strategies. First, to determine the existence of group mean differences between the four groups (Repressive, Low Anxious, High Anxious, and Defensive High Anxious) on the nine coping strategies (acceptance, planning, positive refocusing, positive reappraisal, putting into perspective, self-blame, other-blame, rumination, and catastrophizing), a multivariate analysis of variances (MANOVA) was conducted. An additional MANOVA was conducted to determine the existence of group mean differences between the four adaptive style groups on coping strategy type, adaptive or non-adaptive. The five adaptive coping strategy scores (acceptance, planning, positive refocusing, positive reappraisal, and putting in perspective) comprise the adaptive coping strategy type score. The four non-adaptive coping strategy scores (self-blame, other-blame, rumination, and catastrophizing) comprise the non-adaptive coping strategy type score. First, data were analyzed to ensure that the following assumptions were not violated:

Independence of observations. The observations were assumed to be independent. Measures taken to ensure independence were outlined under Question Four above.

Multivariate normality. As presented in Table 3, two of the CERQ-k variables, self-blame and other-blame, appear to be positively skewed (maximum skewness value = 3.24) and leptokurtic (maximum kurtosis value = 10.5). However, MANOVA is robust to violations of multivariate normality, particularly when the sample size is large (Stevens, 2002). All scores fell within the appropriate range (4 to 20).

Multivariate homogeneity. Box's M-test of homogeneity of within covariance matrices was used to check this assumption. Results of this test indicated that this assumption was violated *(p* < .0001) for both covariance matrices. In order to increase robustness to this violation and control Type I error rate, an alpha level of .01 was used to determine significance of the MANOVAs. Additionally, follow-up tests for significant MANOVA results included the use of the Welch adjusted ANOVA for unequal variance, and the Satterthwaite adjusted T-Test was used for pairwise comparisons that displayed unequal variances.

MANOVA: Differences between Adaptive Styles on Each Coping Strategy

Results of MANOVA and follow-up ANOVAs. This analysis revealed a significant multivariate effect for youth adaptive style, Wilks' $\lambda = .18$, $F(27, 491)$, $p < .0001$. Means and standard deviations are presented in Table 19. Levene's test was conducted and found to be significant ($p \leq .05$) for each of the dependent variables. In order to determine which groups (dependent variables) were statistically significantly different, follow-up ANOVAs were conducted. Because the assumption of homogeneity appeared to be violated, the Welch's ANOVA (alpha = .05) was used to determine statistical significance between adaptive style and each of the coping strategies. There was a statistically significant difference between groups for each of the dependent variables. Results of the Welch's ANOVA are presented in Table 18.

Table 19

ANOVA Results and Means and Standard Deviations for Adaptive Style by Coping Strategy

	R		LA		HA		DHA			
	n = 38		*n* = 52		*n* = 72		*n* = 18		ANOVA	
Coping Strategy	M	SD	M	SD	M	SD	M	SD	F	P
Acceptance	8.29	1.92	9.67	3.56	12.24	3.46	7.72	1.40	27.75	<.0001*
Planning	12.42	4.92	12.29	4.12	10.21	4.19	10.50	1.20	4.41	.0061*
Positive Refocusing	13.50	4.61	12.13	3.98	11.33	4.53	14.39	1.82	7.59	.0002*
Positive Reappraisal	13.13	4.59	12.52	4.68	11.40	4.56	13.17	1.20	2.90	.0393*
Putting in Perspective	10.16	3.39	11.27	4.19	10.42	4.92	13.44	2.18	7.84	.0001*
Self-Blame	4.47	0.65	4.83	1.17	7.31	4.76	5.00	1.08	9.19	<.0001*
Other Blame	5.53	2.55	4.69	0.81	4.50	0.69	5.89	1.60	6.05	.0012*
Rumination	8.92	4.40	5.88	2.32	9.90	3.62	11.17	0.86	63.79	<.0001*
Catastrophizing	6.50	1.56	5.27	1.51	7.13	2.52	10.06	2.65	22.46	<.0001*

Note: R=Repressive, LA=Low Anxious, HA=High Anxious, DHA=Defensive High Anxious.
*p < .05

Post hoc tests. Because the ANOVA for each dependent variable was statistically significant, post hoc tests were conducted to determine which adaptive style pairs were statistically significant. Due to the violation of assumption of homogeneity, each pair of adaptive style groups was compared with an unequal variance T-Test to determine significant differences between groups for each coping strategy. Results of the unequal variance T-Tests are presented in Table 20. Cells with an asterisk indicate adaptive style pairs that were found to be statistically significant, using a Bonferroni adjustment ($\alpha = .008$).

MANOVA: Differences between Adaptive Styles on Coping Strategy Type

Results of MANOVA and follow-up ANOVAs. This analysis revealed a significant multivariate effect for youth adaptive style, Wilks' λ=.72 F(6, 350), p <.0001. Means and standard deviations are presented in Table 21. Levene's test was conducted and found to be significant ($p \leq .05$) for each of the dependent variables. In order to determine which groups were statistically significantly different, follow-up ANOVAs were conducted. Because the

Table 20

T-Test Results: Differences between Adaptive Style Groups on Each Coping Strategy

	R x LA	R x HA	R x DHA	LA x HA	LA x DHA	HA x DHA
Acceptance						
DF	81.76	107.7	54	122	66.68	69.33
t	2.37	7.70	-1.12	4.02	-3.28	-8.59,
p	.0200	<.0001*	.2680	<.0001*	.0016*	<.0001*
Planning						
DF	88	108	45.33	122	67.00	86.40
t	-.14	-2.48	-2.27	-2.75	-2.81	.51
p	.8898	.0148	.0281	.0069*	.0066*	.6098
Positive Refocusing						
DF	88	108	54	122	62.62	70.19
t	-1.50	-2.37	.79	-1.02	3.23	4.46
p	.1361	.0195	.4348	.3088	.0020*	<.0001*
Positive Reappraisal						
DF	88	108	46.37	122	65.18	87.67
t	-.62,	-1.89	.04	-1.33	.92	2.91
p	.5378	.0617	.9650	.1854	.3635	.0046*
Putting in Perspective						
DF	88	108	54	122	57.21	63.5
t	1.34	.29	3.75	-1.01	2.81	3.91
p	.1821	.7728	.0004*	.3137	.0068*	.0002*
Self-Blame						
DF	82.73	75.87	22.91	82.49	68	87.74
t	1.83	4.96	1.90	4.24	.55	-3.74
p	.0706	<.0001*	.0695	<.0001*	.5829	.0003*
Other Blame						
DF	42.41	39.89	49.52	122	20.04	18.61
t	-1.94	-2.43	.65	-1.43	3.03	3.59
p	.0587	.0197	.5211	.1567	.0065*	.0020*
Rumination						
DF	52.04	108	42.57	120.46	67.62	87.94
t	-3.88	1.25	3.03	7.51	13.89	2.67
p	.0003*	.2132	.0042*	.0001*	<.0001*	.0090
Catastrophizing						
DF	88	105.22	22.74	118.43	20.96	88
t	-3.77	1.60	5.29	5.11	7.28	4.37
p	.0003*	.1115	<.0001*	<.0001*	<.0001*	<.0001*

Note: R=Repressive, LA=Low Anxious, HA=High Anxious, DHA=Defensive High Anxious. Satterwaite was used for all T-Tests that show a decimal value in the degrees of freedom.
* Statistically significant, using Bonferroni adjustment (α=.008).

assumption of homogeneity appeared to be violated, the Welch's ANOVA (alpha =.05) was used to determine statistical significance between adaptive style and coping strategy types. There was a statistically significant difference between groups only for the non-adaptive coping strategy type. Results of the Welch's ANOVA are presented in Table 21.

Post hoc tests. Because the ANOVA for each dependent variable was statistically significant for the non-adaptive coping strategies score, post hoc tests were conducted to determine which adaptive style pairs were statistically significant for this outcome variable. Due to the violation of assumption of homogeneity, each pair of adaptive style groups was compared with an unequal variance T-Test to determine significant differences between groups for each coping strategy. Results of the unequal variance T-Tests are presented in Table 22. Cells with an asterisk indicate adaptive style pairs that were found to be statistically significant, using a Bonferroni adjustment ($\alpha = .008$).

Table 21

Means, Standard Deviations and ANOVA results for Adaptive Style by Coping Strategy Type

	R (n = 38)		LA (n = 52)		HA (n = 72)		DHA (n = 18)		ANOVA	
Strategy Type	M	SD	M	SD	M	SD	M	SD	F	*p*
Adaptive	57.5	17.0	57.9	16.7	55.6	17.1	59.2	2.9	1.07	.3646
Non-adaptive	25.4	7.4	20.7	3.8	28.8	8.1	32.1	2.8	63.28	<.0001

Note: R=Repressive, LA=Low Anxious, HA=High Anxious, DHA=Defensive High Anxious.

Table 22

T-Test Results Examining Differences between Adaptive Style Groups on Non-adaptive Strategies

	R x LA	R x HA	R x DHA	LA x HA	LA x DHA	HA x DHA
DF	51.34	108	52.61	107.14	68	78.32
t	-3.63	2.17	4.88	7.50	11.67	2.81
p	.0006*	.0322	<.0001*	<.0001*	<.0001*	.0062*

Note: R=Repressive, LA=Low Anxious, HA=High Anxious, DHA=Defensive High Anxious.
Satterwaite was used for all T-Tests that show a decimal value in the degrees of freedom.
* Statistically significant, using Bonferroni adjustment (α=.008).

Summary of Research Question Seven

Table 23 provides a visual representation of all statistically significant differences between groups on the nine coping strategies and the non-adaptive coping strategy type. In the summary table, it is evident that High Anxious and/or Defensive High Anxious adaptive styles are consistently higher across coping strategies and the non-adaptive coping strategy type than Low Anxious and/or Repressive. An exception was for the coping strategies of acceptance (LA higher than DHA) and planning (LA higher than HA and DHA). Repressive adaptive style was also significantly higher than Low Anxious on the non-adaptive coping strategy type and on the non-adaptive strategies of rumination and catastrophizing.

Table 23

Summary of Post Hoc Test Results: Significant Differences between Adaptive Styles on Coping Strategies and Non-Adaptive Coping Strategy Type

	R higher than …	LA higher than …	HA higher than …	DHA higher than…
Acceptance		DHA	R LA DHA	
Planning		HA DHA		
Positive Refocusing				HA LA
Positive Reappraisal				HA
Putting in Perspective				R LA HA
Self-Blame			Rdddddd LA DHA	
Other Blame				LA HA
Rumination	LA		LA	R
Catastrophizing	LA		LA	R HA
Non-adaptive	LA		LA	R LA HA

Note: R=Repressive, LA=Low Anxious, HA=High Anxious, DHA=Defensive High Anxious.

Research Question Eight

Multiple Regression

Question eight examines which combination of adaptive style and coping strategies best predict subjective well-being, as measured by the Student Life Satisfaction Scale (SLSS) and the Positive and Negative Affect Scale – Children (PANAS-C). First, multiple regressions were used to determine what set of independent variables (four adaptive styles and/or nine coping strategies) best predicted composite subjective well-being scores. Three models were compared by conducting three regressions: a combination of adaptive styles and coping strategies, coping strategies only, and adaptive styles only. The outcomes of each were compared to determine which set of predictor variables best accounts for the variability in subjective well-being. Next, multiple regressions were used to determine what set of independent variables (four adaptive styles and/or two coping strategy types – adaptive/non-adaptive) best predicted composite subjective well-being. Three models were compared by conducting three regressions: a combination of adaptive styles and coping strategy types, coping strategy types only, and adaptive styles only. The outcomes of each were compared to determine which set of predictor variables best accounts for the variability in subjective well-being.

Multicollinearity. First, multicollinearity of the independent variables was examined, as it can pose several problems when using multiple regression (Stevens, 2002). Field and Miles (2010) suggest that one way of identifying multicollinearity is to examine the correlations between predictor variables to determine if any are highly correlated. They report that correlations above .80 or .90 are very highly correlated. They also propose the use of other collinearity diagnostics such as the variance inflation factor (VIF) and the tolerance statistic. VIF values greater than 10 and tolerance statistics below .1 can indicate serious problems with

multicollinearity. While no correlations between predictor variables were greater than .9, three were greater than .8 in models that included all nine coping strategies: Planning and Positive Reappraisal (r = .8437), Positive Reappraisal and Positive Refocusing (r= .8149), and Planning and Positive Refocusing (r = .8263). Variance inflation factors and tolerance statistics are specific to the regression model and are reported for each model below.

Normality and Homogeneity. Descriptive statistics and residual plots were examined to check the assumptions that residuals were normal and homoscedastic. For the examination of univariate normality of residuals across all models in both sets of regressions, skewness and kurtosis were calculated. Skewness of .04 and kurtosis of -.79 suggested approximate normal distribution of residuals. All observations were within the possible range of scores. Results of the examination of residual plots, skewness and kurtosis are reported for each model below.

Adaptive Styles and Coping Strategies Predicting Subjective Well-Being

Multiple Regression, Model One. The first model examined the combination of the set of nine coping strategies and the set of four adaptive styles as predictors for the outcome variable, subjective well-being. Because adaptive style is categorical, the four styles were dummy coded, with repressive adaptive style identified as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .1, but three had tolerance of less than .2, which may indicate a potential problem. These were Positive Refocusing (.1799), Planning (.1161), and Positive Reappraisal (.1522). These results were taken into consideration when interpreting the regression results.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of -.15 and kurtosis of -.20

suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix M).

Multiple Regression Results. Using multiple regression, SWB scores were regressed on the linear combination of coping strategies and adaptive styles. The equation containing these 13 variables accounted for approximately 80% of observed variance in subjective well-being, $F(12, 167) = 54.70$, $p < .0001$, adjusted $R^2 = .78$. Beta weights are presented in Table 24. These were reviewed to assess the relative importance of the 13 variables in the prediction of SWB. Seven variables displayed significant beta weights. Three of these exhibited positive relationships with SWB: Acceptance ($\beta = .26$ $p < .0001$), Positive Refocusing ($\beta = .38$, $p < .0001$), and Positive Reappraisal ($\beta = .22$, $p = .0136$). The remaining four had negative relationships with SWB: Self-Blame ($\beta = -.23$, $p < .001$), Catastrophizing ($\beta = -.53$, $p < .0001$), Low Anxious ($\beta = -.27$, $p < .0001$), and High Anxious ($\beta = -.44$, $p < .0001$).

Multiple Regression, Model Two. The second model examined the set of coping strategies as predictors for the outcome variable, subjective well-being.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .1, but the same three predictor variables as in Model One had tolerance of less than .2. These were Positive Refocusing (.1985), Planning (.1466), and Positive Reappraisal (.1685). These results were taken into consideration when interpreting the regression results.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of -.32 and kurtosis of -.61 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix N).

Table 24

Multiple Regression: Adaptive Styles and Coping Strategies Predicting Subjective Well-Being

	B	SE *B*	β	t	
Model 1					
Intercept	-.08	.44	0	-.18	
Acceptance	.15	.03	.26	4.69	***
Planning	-.06	.05	-.12	-1.20	
Positive Refocusing	.18	.04	.38	4.64	***
Positive Reappraisal	.10	.04	.22	2.49	*
Putting in Perspective	-.03	.03	-.07	-.99	
Self-Blame	-.14	.03	-.23	-5.22	***
Other Blame	.09	.07	.07	1.43	
Rumination	.05	.03	.10	1.54	
Catastrophizing	-.44	.04	-.53	-10.10	***
Low Anxious	-1.23	.23	-.27	-5.23	***
High Anxious	-1.87	.27	-.44	-7.01	***
Defensive High Anxious	.48	.34	.07	1.42	
Model 2					
Intercept	-1.02	.48	0	-2.13	*
Acceptance	.01	.03	.02	.39	
Planning	-.05	.05	-.11	-.99	
Positive Refocusing	.28	.04	.58	6.18	***
Positive Reappraisal	.00	.05	.01	.07	
Putting in Perspective	.03	.04	.06	.83	
Self-Blame	-.18	.03	-.30	-5.88	***
Other Blame	.25	.08	.18	3.37	**
Rumination	.08	.03	.14	2.28	*
Catastrophizing	-.45	.05	-.54	-8.81	***
Model 3					
Intercept	1.45	.30	0	4.83	***
Low Anxious	-1.10	.40	-.24	-2.79	**
High Anxious	-2.45	.37	-.58	-6.58	***
Defensive High Anxious	-.92	.53	-.13	-1.74	

Note: R^2 = .80 for Model 1: Δ R^2 = -.09 for Model 2: Δ R^2 = -.50 for Model 3
* p < .0 5 ** p < .01 ***p < .0001

Multiple Regression Results. Using multiple regression, SWB scores were regressed on the linear combination of coping strategies. The equation containing these 9 variables accounted for approximately 71% of observed variance in subjective well-being, F(9,170) = 45.39, p < .0001, adjusted R^2 = .69. Beta weights were presented in Table 24. A review of these revealed

that five predictors displayed significant beta weights. Three had positive relationships: Rumination (β = .14, p =.0241), Positive Refocusing (β = .58, $p < .0001$), and Other Blame (β = .18, p =.0009). The remaining two displayed negative relationships: Self-Blame (β = -.30, $p < .0001$) and Catastrophizing (β = -.54, $p < .0001$).

Multiple Regression, Model Three. The third model examined the set of adaptive styles as predictor variables for the outcome variable, subjective well-being. Because the predictor variable is categorical, adaptive style groups were dummy coded prior to conducting the regression. Repressive adaptive style was used as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .2.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of .04 and kurtosis of -.79 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix O).

Multiple Regression Results. Using multiple regression, SWB scores were regressed on the linear combination of adaptive styles. The equation containing these four dummy-coded variables accounted for approximately 21% of observed variance in subjective well-being, $F(3,176) = 15.72$, $p < .0001$, adjusted $R^2 = .20$. Beta weights were presented in Table 24. A review of these revealed that two predictors displayed significant beta weights. Both had negative relationships: Low Anxious (β = -.24, p = .0058) and High Anxious (β = -.58, p < .0001).

Adaptive Styles and Coping Strategy Types Predicting Subjective Well-Being

Multiple Regression, Model One. The first model in this set examined the combination of the set of four adaptive styles and the set of two coping strategy types (adaptive and non-adaptive) as predictors for the outcome variable, subjective well-being. Because adaptive style is categorical, the four styles were dummy coded, with repressive adaptive style identified as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .2. Thus, there did not appear to be a problem with multicollinearity for this model.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of -.18 and kurtosis of -.80 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix P).

Multiple Regression Results. Using multiple regression, SWB scores were regressed on the linear combination of coping strategy types and adaptive styles. The equation containing these six variables accounted for approximately 57% of observed variance in subjective well-being, $F(5, 174) = 45.83$, $p < .0001$, adjusted $R^2 = .56$. Beta weights are presented in Table 25. These were reviewed to assess the relative importance of the six variables in the prediction of SWB. Four variables displayed significant beta weights. One of these exhibited positive relationship with subjective well-being: Adaptive coping strategies ($\beta = .59$, $p < .0001$). Three of these exhibited negative relationships with SWB: Non-adaptive Coping Strategies ($\beta = -.28$, $p < .0001$), Low Anxious ($\beta = -.33$, $p < .0001$), and High Anxious ($\beta = -.49$, $p = <.0001$).

Multiple Regression, Model Two. The second model examined the set of coping strategy types as predictors for the outcome variable, subjective well-being.

Multicollinearity. The predictor variables each had VIF values less than 10. Neither of the predictor variables had tolerance less than.2. Thus, there did not appear to be a problem with multicollinearity for this model.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of -.05 and kurtosis of -.97 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix Q).

Table 25

Multiple Regression: Adaptive Style & Coping Strategy Types Predicting Subjective Well-Being

	B	SE*B*	β	*t*	
Model 1					
Intercept	-1.01	.55	0	-1.83	
Adaptive Coping	.08	.01	.59	11.69	***
Non-adaptive Coping	-.08	.02	-.28	-4.68	***
Low Anxious	-1.49	.30	-.33	-4.91	***
High Anxious	-2.04	.28	-.49	-7.23	***
Defensive High Anxious	-.55	.41	-.08	-1.34	
Model 2					
Intercept	-2.35	.56	0	-4.17	***
Adaptive Coping	.08	.01	.62	10.64	***
Non-adaptive Coping	-.08	.02	-.30	-5.10	***
Model 3					
Intercept	1.45	.30	0	4.83	***
Low Anxious	-1.10	.40	-.24	-2.79	**
High Anxious	-2.45	.37	-.58	-6.58	***
Defensive High Anxious	-.92	.53	-.13	-1.74	

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

Note: $R^2 = .57$ for Model 1: $\Delta R^2 = -.15$ for Model 2: $\Delta R^2 = -.21$ for Model 3

Multiple Regression Results. Using multiple regression, SWB scores were regressed on the linear combination of coping strategy types. The equation containing these two variables accounted for approximately 42% of observed variance in subjective well-being, $F(2, 177) = 63.48$, $p < .0001$, adjusted $R^2 = .41$. Beta weights are presented in Table 25. A review of these revealed that both predictors displayed significant beta weights. The adaptive coping strategy score had a positive relationship ($\beta = .62$, $p < .0001$). The non-adaptive coping strategy score displayed a negative relationship ($\beta = -.30$, $p < .0001$).

Multiple Regression, Model Three. The third model examined the set of adaptive styles as predictor variables for the outcome variable, subjective well-being. Because the predictor variable is categorical, adaptive style groups were dummy coded prior to conducting the regression. Repressive adaptive style was used as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .2. There did not appear to be a problem with multicollinearity for this model.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of .04 and kurtosis of -.79 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix O).

Multiple Regression Results. As indicated for the first set of multiple regressions involving SWB, Model 3, outcome scores were regressed on the linear combination of adaptive styles. The equation containing these four dummy-coded variables accounted for approximately 21% of observed variance in subjective well-being, $F(3,176) = 15.72$, $p < .0001$, adjusted $R^2 = .20$. Beta weights are presented in Table 25. A review of these revealed that two predictors

displayed significant beta weights. Both had negative relationships: Low Anxious ($\beta = -.24$, $p = .0058$) and High Anxious ($\beta = -.58$, $p < .0001$).

Summary of Research Question Eight

The results of the multiple regression analyses examining adaptive styles, coping strategies and coping strategy types as predictors of subjective well-being are summarized in Table 26. In this table, it is indicated if a variable had a statistically significant positive (+) or negative (-) effect in Model 1, which controlled for other factors in addition to the set to which the variable belonged, and/or in Model 2 or 3, the simplified models that did not control for other factors. It is evident that there are statistically significant variables that remain consistent across multiple models. For example, Positive Refocusing and Adaptive Coping Type had consistent statistically significant positive effects, Self-Blame, Catastrophizing, and Non-Adaptive Coping had consistent statistically significant negative effects, and Low and High Anxious adaptive styles had consistent statistically significant negative associations compared to the Repressive adaptive style.

Research Question Nine

Multiple Regression

Question nine examines which combination of adaptive style and coping strategies best predict psychosocial adjustment and risk, as measured by the Child Behavior Checklist (CBCL). Two sets of multiple regressions were used to determine what set of independent variables (adaptive style category and/or coping strategies) best predict each of two CBCL scales measuring psychosocial risk (Externalizing Behavior and Internalizing Behavior) and one CBCL a scale measuring psychosocial adjustment (Social Competence). The first set of models for each of these outcome variables included the four adaptive styles and all nine coping strategies

as independent variables. The second set of models for each outcome variable examined the four adaptive styles and two coping strategy types (adaptive and non-adaptive) as predictor variables.

Table 26

Summary of Multiple Regression Analyses: Adaptive Styles, Coping Strategies and Coping Strategy Types as Predictors of Subjective Well-Being

	Model 1	Models 2 & 3
Adaptive Styles & Coping Strategies		
Acceptance	+	
Planning		
Positive Refocusing	+	+
Positive Reappraisal	+	
Putting in Perspective		
Self-Blame	-	-
Other Blame		-
Rumination		-
Catastrophizing	-	-
Low Anxious	-	-
High Anxious	-	-
Defensive High Anxious		
Adaptive Styles & Coping Strategy Types		
Adaptive Coping	+	+
Non-adaptive Coping	-	-
Low Anxious	-	-
High Anxious	-	-
Defensive High Anxious		

Multicollinearity. First, multicollinearity of the independent variables was examined by reviewing the correlations between predictor variables to determine if any were highly correlated. The variance inflation factors and tolerance statistics were also reviewed. While no correlations between predictor variables were greater than .9, three were greater than .8 in models that included all nine coping strategies: Planning and Positive Reappraisal (r= .8407), Positive Reappraisal and Positive Refocusing (r= .8140), and Planning and Positive Refocusing (r= .8263). Variance inflation factors and tolerance statistics are specific to the regression model and are reported for each model below.

Normality and Homogeneity. Descriptive statistics and residual plots were examined to check the assumptions that residuals were normal and homoscedastic. For the examination of univariate normality of residuals across all models for each the three outcome variables, skewness and kurtosis values were calculated. Approximate normal distribution of residuals was evident for internalizing behaviors (skewness =.14, kurtosis = -.86), externalizing behaviors (skewness=.85, kurtosis=.13) and social competence (skewness = -.24, kurtosis = -.47). All observations were within the possible range of scores. Results of the examination of residual plots, skewness and kurtosis are reported for each model below.

Adaptive Styles and Coping Strategies Predicting Internalizing Behavior

Multiple Regression, Model One. The first model examined the combination of the set of nine coping strategies and the set of four adaptive styles as predictors for the outcome variable, internalizing behavior. Because adaptive style is categorical, the four styles were dummy coded, with repressive adaptive style identified as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .1, but three had tolerance of less than .2, which may indicate a potential problem. These were Positive Refocusing (.1799), Planning (.1185), and Positive Reappraisal (.1549). These results were taken into consideration when interpreting the regression results.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of -.22 and kurtosis of -.66 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix R).

Multiple Regression Results. Using multiple regression, internalizing behavior scores were regressed on the linear combination of coping strategies and adaptive styles. The equation containing these 13 variables accounted for approximately 41% of observed variance in internalizing behavior, $F(12, 166) = 9.47$, $p < .0001$, adjusted $R^2 = .36$. Beta weights are presented in Table 27. These were reviewed to assess the relative importance of the 13 variables in the prediction of Internalizing Behaviors. Three variables displayed significant beta weights. Two of these exhibited a positive relationship with Internalizing Behavior: High Anxious ($\beta = .40$, $p = .0003$) and Defensive High Anxious ($\beta = .36$, $p < .0001$). Putting in Perspective exhibited a negative relationship with Internalizing Behavior ($\beta = -.32$, $p = .0052$).

Multiple Regression, Model Two. The second model examined the set of coping strategies as predictors for the outcome variable, internalizing behavior.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .1, but the same three predictor variables as in Model One had tolerance of less than .2. These were Positive Refocusing (.1986), Planning (.1491, and Positive Reappraisal (.1714). These results were taken into consideration when interpreting the regression results.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of .02 and kurtosis of -.81 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix S).

Multiple Regression Results. Using multiple regression, internalizing behavior scores were regressed on the linear combination of coping strategies. The equation containing these nine variables accounted for approximately 32% of observed variance in internalizing behavior,

Table 27

Multiple Regression: Adaptive Styles and Coping Strategies Predicting Internalizing Behavior

	B	SE *B*	β	t	
Model 1					
Intercept	56.47	4.35	0	12.97	***
Acceptance	.58	.32	.17	1.85	
Planning	-.91	.49	-.33	-1.88	
Positive Refocusing	.50	.39	.18	1.29	
Positive Reappraisal	-.22	.41	-.08	-.53	
Putting in Perspective	-.88	.31	-.32	-2.83	**
Self-Blame	.11	.26	.03	.41	
Other Blame	.77	.65	.09	1.19	
Rumination	-.05	.34	-.02	-.15	
Catastrophizing	-.03	.43	-.01	-.06	
Low Anxious	2.77	2.29	.11	1.21	
High Anxious	9.55	2.61	.40	3.67	**
Defensive High Anxious	14.14	3.31	.36	4.27	***
Model 2					
Intercept	55.73	4.19	0	13.30	***
Acceptance	.88	.27	.26	3.32	**
Planning	-1.66	.46	-.59	-3.63	**
Positive Refocusing	.57	.39	.21	1.46	
Positive Reappraisal	-.07	.41	-.03	-.16	
Putting in Perspective	-.63	.31	-.23	-2.03	*
Self-Blame	.20	.27	.06	.73	
Other Blame	.41	.66	.05	.62	
Rumination	.63	.29	.20	2.20	*
Catastrophizing	.29	.44	.06	.65	
Model 3					
Intercept	49.08	1.70	0	28.85	***
Low Anxious	1.67	2.23	.06	.75	
High Anxious	12.29	2.09	.51	5.87	***
Defensive High Anxious	13.14	2.97	.34	4.42	***

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

Note: R^2 = .41 for Model 1: Δ R^2 = -.09 for Model 2: Δ R^2 = -.08 for Model 3.

F(9,169) = 9.01, p < .0001, adjusted R^2 = .29. Beta weights are presented in Table 27. A review of these revealed that four predictors displayed significant beta weights. Two had positive relationships: Acceptance (β = .26, p = .0015) and Rumination (β = .20, p =.0292). The

remaining two displayed negative relationships: Planning (β = -.59, p = .0004) and Putting in Perspective (β = -.23, p = .0442).

Multiple Regression, Model Three. The third model examined the set of adaptive styles as predictor variables for the dependent variable, internalizing behavior. Because the predictor variable is categorical, adaptive style groups were dummy coded prior to conducting the regression. Repressive Adaptive Style was used as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .2.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of .14 and kurtosis of -.86 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix T).

Multiple Regression Results. Using multiple regression, Internalizing Behavior scores were regressed on the linear combination of adaptive styles. The equation containing these four dummy-coded variables accounted for approximately 24% of observed variance in internalizing behavior, $F(3,175) = 18.60$, $p < .0001$, adjusted $R^2 = .23$. Beta weights are presented in Table 27. Two of these variables displayed significant beta weights, both positive: High Anxious (β = .51 p < .0001) and Defensive High Anxious (β = .34, p < .0001).

Adaptive Styles and Coping Strategy Types Predicting Internalizing Behavior

Multiple Regression, Model One. The first model examined the combination of the set of two coping strategy types and the set of four adaptive styles as predictors for the outcome variable, internalizing behavior. Because adaptive style is categorical, the four styles were dummy coded, with repressive adaptive style identified as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .2.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of -.12 and kurtosis of -.18 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix U).

Multiple Regression Results. Using multiple regression, internalizing behavior scores were regressed on the linear combination of coping strategy types and adaptive styles. The equation containing these six variables accounted for approximately 35% of observed variance in internalizing behavior, $F(5, 173) = 19.02$, $p < .0001$, adjusted $R^2 = .34$. Beta weights are presented in Table 28. These were reviewed to assess the relative importance of the four variables in the prediction of Internalizing Behaviors. Three variables displayed significant beta weights. Two of these exhibited a positive relationship with Internalizing Behavior: High Anxious ($\beta = .47$, $p = <.0001$) and Defensive High Anxious ($\beta = .32$, $p < .0001$). Adaptive coping strategies exhibited a negative relationship with Internalizing Behavior ($\beta = -.34$, $p < .0001$).

Multiple Regression, Model Two. The second model examined the two coping strategy types, adaptive coping and non-adaptive coping, as predictors for the outcome variable, internalizing behavior.

Multicollinearity. The predictor variables each had VIF values less than 10. Neither of the predictor variables had tolerance less than .2. Multicollinearity did not present a problem for this model.

Table 28

Multiple Regression: Adaptive Styles & Coping Strategy Types Predicting Internalizing Behavior

	B	SE *B*	β	t	
Model 1					
Intercept	59.32	3.87	0	15.33	*
Adaptive Coping	-.25	.05	-.34	-5.48	*
Non-adaptive Coping	.16	.11	.10	1.40	
Low Anxious	2.61	2.13	.10	1.22	
High Anxious	11.36	1.99	.47	5.70	*
Defensive High Anxious	12.59	2.87	.32	4.39	*
Model 2					
Intercept	59.61	3.80	0	15.70	*
Adaptive Coping	-.28	.05	-.38	-5.53	*
Non-adaptive Coping	.46	.11	.29	4.32	*
Model 3					
Intercept	49.08	1.70	0	28.85	*
Low Anxious	1.67	2.23	.06	.75	
High Anxious	12.29	2.09	.51	5.87	*
Defensive High Anxious	13.14	2.97	.34	4.42	*

* $p < .0001$

Note: $R^2 = .35$ for Model 1: $\Delta R^2 = -.15$ for Model 2: $\Delta R^2 = .04$ for Model 3

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of .48 and kurtosis of -.11 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix V).

Multiple Regression Results. Using multiple regression, internalizing behavior scores were regressed on the linear combination of coping strategy types. The equation containing these two variables accounted for approximately 20% of observed variance in internalizing behavior, $F(2, 176) = 22.02$ $p < .0001$, adjusted $R^2 = .19$. Beta weights were presented in Table 28. A review of these revealed that both predictors displayed significant beta weights. Adaptive coping strategies exhibited a negative relationship with internalizing behavior ($\beta = -.38$, $p < .0001$). Non-adaptive coping displayed a positive relationship ($\beta = .29$, $p = < .0001$).

Multiple Regression, Model Three. The third model examined the set of adaptive styles as predictor variables for the dependent variable, internalizing behavior. Because the predictor variable is categorical, adaptive style groups were dummy coded prior to conducting the regression. Repressive adaptive style was used as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .2.

Normality and Homogeneity. As described for Model 3 in the first set of regressions for this outcome variable, skewness of .14 and kurtosis of -.86 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix T).

Multiple Regression Results. Using multiple regression, internalizing scores were regressed on the linear combination of adaptive styles. The equation containing these four dummy-coded variables accounted for approximately 24% of observed variance in internalizing behavior, $F(3,175) = 18.60$, $p < .0001$, adjusted $R^2 = .23$. Beta weights are presented in Table 28. A review of these revealed that two of these displayed significant beta weights, both positive: High Anxious ($\beta = -.51$, $p < .0001$) and Defensive High Anxious ($\beta = .34$, $p < .0001$).

Adaptive Styles and Coping Strategies Predicting Externalizing Behavior

Multiple Regression, Model One. The first model in this set of multiple regressions examined the combination of all nine coping strategies and the four adaptive styles as predictors for the outcome variable, externalizing behavior. Because adaptive style is categorical, the four styles were dummy coded, with repressive adaptive style identified as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .1, but three had tolerance of less than .2, which may

indicate a potential problem. These were Positive Refocusing (.1799), Planning (.1185), and Positive Reappraisal (.1549). These results were taken into consideration when interpreting the regression results.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of .54 and kurtosis of -.04 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix W).

Multiple Regression Results. Using multiple regression, externalizing behavior scores were regressed on the linear combination of coping strategies and adaptive styles. The equation containing these 13 variables accounted for approximately 12% of observed variance in externalizing behavior, $F(12, 166) = 1.83$, $p = .0463$, adjusted $R^2 = .05$. Beta weights are presented in Table 29. A review of these revealed that four predictors displayed significant beta weights. Three had positive relationships: Rumination ($\beta = .27$, $p = .0415$), Other Blame ($\beta = .22$, $p = .0220$), and Low Anxious ($\beta = .24$, $p = .0245$). Defensive High Anxious exhibited a negative relationship ($\beta = -.21$, $p = .0418$).

Multiple Regression, Model Two. The second model examined the set of coping strategies as predictors for the outcome variable, externalizing behavior.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .1, but the same three predictor variables as in Model One had tolerance of less than .2. These were Positive Refocusing (.1986), Planning (.1491, and Positive Reappraisal (.1714). These results were taken into consideration when interpreting the regression results.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of .78 and kurtosis of .52 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix X).

Multiple Regression Results. Using multiple regression, externalizing behavior scores were regressed on the linear combination of coping strategies. The equation containing these nine variables accounted for approximately 6% of observed variance in externalizing behavior, $F(9,169) = 1.20$, $p = .2970$, adjusted $R^2 = .01$. Beta weights are presented in Table 29. A review of these revealed that one predictor displayed a significant beta weight. Other Blame had a positive relationship ($\beta = .19$, $p = .0454$).

Multiple Regression, Model Three. The third model examined the set of adaptive styles as predictor variables for the dependent variable, externalizing behavior. Because the predictor variable is categorical, adaptive style groups were dummy coded prior to conducting the regression. Repressive Adaptive Style was used as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .2.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of .85 and kurtosis of .13 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix Y).

Multiple Regression Results. Using multiple regression, externalizing behavior scores were regressed on the linear combination of adaptive styles. The equation containing these four dummy-coded variables accounted for approximately 3% of observed variance in externalizing

Table 29

Multiple Regression: Adaptive Styles and Coping Strategies Predicting Externalizing Behavior

	B	SE *B*	β	t	
Model 1					
Intercept	39.92	4.23	0	9.43	**
Acceptance	.01	.31	.00	.03	
Planning	-.32	.47	-.14	-.68	
Positive Refocusing	.02	.38	.01	.06	
Positive Reappraisal	-.45	.40	-.21	-1.13	
Putting in Perspective	.22	.30	.10	.72	
Self-Blame	-.36	.26	-.13	-1.43	
Other Blame	1.46	.63	.22	2.31	*
Rumination	.68	.33	.27	2.05	*
Catastrophizing	-.14	.42	-.04	-.34	
Low Anxious	5.05	2.26	.24	2.27	*
High Anxious	1.03	2.53	.05	.41	
Defensive High Anxious	-6.60	3.22	-.21	-2.05	*
Model 2					
Intercept	44.96	3.94	0	11.41	**
Acceptance	.18	.26	.07	.69	
Planning	.19	.43	-.08	.43	
Positive Refocusing	-.32	.37	-.15	-.88	
Positive Reappraisal	-.29	.39	-.13	-.75	
Putting in Perspective	-.04	.29	-.02	-.13	
Self-Blame	-.26	.26	-.09	-1.00	
Other Blame	1.25	.62	.19	2.02	*
Rumination	.14	.27	.06	.53	
Catastrophizing	-.30	.42	-.08	-.73	
Model 3					
Intercept	44.08	1.53	0	28.79	**
Low Anxious	2.52	2.00	.12	1.26	
High Anxious	.77	1.88	.04	.41	
Defensive High Anxious	-3.75	2.68	-.12	-1.40	

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

Note: $R^2 = .12$ for Model 1: $\Delta R^2 = -.06$ for Model 2: $\Delta R^2 = -.03$ for Model 3.

behavior, F(3,175) = 2.10, p =.1025, adjusted R^2 = .02. Beta weights are presented in Table 29.

None of the predictors displayed significant beta weights.

Adaptive Styles and Coping Strategy Types Predicting Externalizing Behavior

Multiple Regression, Model One. The first model in this set of regressions examined the combination of two coping strategy types and all four adaptive styles as predictors for the outcome variable, externalizing behavior. Because adaptive style is categorical, the four styles were dummy coded, with repressive adaptive style identified as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .2. No problems with multicollinearity were present for this model.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of .74 and kurtosis of -.06 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix Z).

Multiple Regression Results. Using multiple regression, externalizing behavior scores were regressed on the linear combination of coping strategy types and adaptive styles. The equation containing these six variables accounted for approximately 5% of observed variance in externalizing behavior, $F(5, 173) = 1.88$, $p = .1006$, adjusted $R^2 = .02$. Beta weights are presented in Table 30. A review of these revealed that none of the predictors displayed significant beta weights.

Multiple Regression, Model Two. The second model examined the two coping strategy types, adaptive and non-adaptive, as predictors for the outcome variable, externalizing behavior.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .2. Multicollinearity did not pose a problem for this model.

Table 30

Multiple Regression: Adaptive Styles and Coping Strategy Types Predicting Externalizing Behavior

	B	SE *B*	β	t	
Model 1					
Intercept	43.70	3.74	0	11.68	*
Adaptive Coping	-.06	.04	-.10	-1.32	
Non-adaptive Coping	.15	.11	.12	1.34	
Low Anxious	3.22	2.06	.16	1.57	
High Anxious	.13	1.93	.01	.07	
Defensive High Anxious	-4.65	2.78	-.15	-1.68	
Model 2					
Intercept	47.41	3.37	0	14.06	*
Adaptive Coping	-.05	.04	-.09	-1.15	
Non-adaptive Coping	.01	.09	.01	.10	
Model 3					
Intercept	44.08	1.53	0	28.79	*
Low Anxious	2.52	2.00	.12	1.26	
High Anxious	.77	1.88	.04	.41	
Defensive High Anxious	-3.75	2.68	-.12	-1.40	

* $p < .001$

Note: $R^2 = .05$ for Model 1: $\Delta R^2 = -.04$ for Model 2: $\Delta R^2 = .02$ for Model 3.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of .88 and kurtosis of .25 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix AA).

Multiple Regression Results. Using multiple regression, externalizing behavior scores were regressed on the linear combination of coping strategy types. The equation containing these two variables accounted for approximately 1% of observed variance in externalizing behavior, $F(2, 176) = .67$, $p = .5150$, adjusted $R^2 = .00$. Beta weights are presented in Table 30. A review of these revealed that neither of the predictors had significant beta weights.

Multiple Regression, Model Three. The third model examined the set of adaptive styles as predictor variables for the dependent variable, externalizing behavior. Because the

predictor variable is categorical, adaptive style groups were dummy coded prior to conducting the regression. Repressive Adaptive Style was used as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .2.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of .85 and kurtosis of .13 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix Y).

Multiple Regression Results. Using multiple regression, externalizing behavior scores were regressed on the linear combination of adaptive styles. The equation containing these four dummy-coded variables accounted for approximately 3% of observed variance in externalizing behavior, $F(3,175) = 2.10$, $p = .1025$, adjusted $R^2 = .02$. Beta weights are presented in Table 30. None of the predictors displayed significant beta weights.

Adaptive Styles and Coping Strategies Predicting Social Competence

Multiple Regression, Model One. The first model examined the combination of the set of nine coping strategies and the set of four adaptive styles as predictors for the outcome variable, social competence. Because adaptive style is categorical, the four styles were dummy coded, with repressive adaptive style identified as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .1, but three had tolerance of less than .2, which may indicate a potential problem. These were Positive Refocusing (.1799), Planning (.1185), and Positive Reappraisal (.1549). These results were taken into consideration when interpreting the regression results.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of .34 and kurtosis of -.21 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix BB).

Multiple Regression Results. Using multiple regression, social competence scores were regressed on the linear combination of coping strategies and adaptive styles. The equation containing these 13 variables accounted for approximately 46% of observed variance in social competence, $F(12, 166) = 11.87$, $p < .0001$, adjusted $R^2 = .42$. Beta weights are presented in Table 31. A review of these revealed that five predictors displayed significant beta weights. Three had positive relationships: Planning ($\beta = .48$, $p = .0039$), Catastrophizing ($\beta = .36$, $p < .0001$), and High Anxious ($\beta = .42$, $p < .0001$). The remaining two had negative relationships: Self-Blame ($\beta = -.48$, $p < .0001$) and Defensive High Anxious ($\beta = -.18$, $p = .0268$).

Multiple Regression, Model Two. The second model examined the set of coping strategies as predictors for the outcome variable, social competence.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .1, but the same three predictor variables as in Model 1 had tolerance of less than .2. These were Positive Refocusing (.1986), Planning (.1491, and Positive Reappraisal (.1714). These results were taken into consideration when interpreting the regression results.

No*rmality and Homogeneity.* For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of .02 and kurtosis of -.78 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix CC).

Table 31

Multiple Regression: Adaptive Style and Coping Strategies Predicting Social Competence

	B	SE *B*	β	t	
Model 1					
Intercept	31.50	3.21	0	9.82	***
Acceptance	-.06	.23	-.02	-.27	
Planning	1.05	.36	.48	2.93	**
Positive Refocusing	-.54	.29	-.25	-1.88	
Positive Reappraisal	.42	.30	.20	1.39	
Putting in Perspective	.03	.23	.01	.13	
Self-Blame	-1.31	.19	-.48	-6.74	***
Other Blame	-.87	.48	-.14	-1.82	
Rumination	-.16	.25	-.07	-.64	
Catastrophizing	1.31	.32	.36	4.14	***
Low Anxious	3.06	1.69	.15	1.81	
High Anxious	7.82	1.92	.42	4.07	***
Defensive High Anxious	-5.45	2.44	-.18	-2.23	*
Model 2					
Intercept	34.28	3.18	0	10.79	***
Acceptance	.67	.21	.26	3.23	**
Planning	.96	.35	.44	2.75	**
Positive Refocusing	-.97	.30	-.46	-3.29	**
Positive Reappraisal	.95	.31	.46	3.05	**
Putting in Perspective	-.34	.23	-.16	-1.46	
Self-Blame	-1.12	.21	-.41	-5.44	***
Other Blame	-1.64	.50	-.26	-3.30	**
Rumination	-.21	.22	-.09	-.96	
Catastrophizing	1.36	.34	.37	4.03	***
Model 3					
Intercept	38.84	1.46	0	26.68	**
Low Anxious	2.66	1.90	.13	1.40	
High Anxious	3.72	1.79	.20	2.08	*
Defensive High Anxious	-4.34	2.54	-.14	-1.70	

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

Note: $R^2 = .46$ for Model 1: $\Delta R^2 = -.11$ for Model 2: $\Delta R^2 = -.04$ for Model 3.

Multiple Regression Results. Using multiple regression, social competence scores were regressed on the linear combination of coping strategies. The equation containing these nine variables accounted for approximately 35% of observed variance in social competence, $F(9,169) = 10.18$, $p < .0001$, adjusted $R^2 = .32$ Beta weights are presented in Table 31. A review of these

revealed that seven predictors displayed significant beta weights. Four had positive relationships: Acceptance (β = .26, *p* =.0015), Planning (β = .44, *p* = .0065), Positive Reappraisal (β = .46, *p* =.0027) and Catastrophizing (β = .37, *p* < .0001). The remaining three displayed negative relationships: Self-Blame (β = -.41, *p* < .0001), Positive Reframing (β = -.46, *p* = .0012), and Other Blame (β = -.26, *p* = .0012).

Multiple Regression, Model Three. The third model examined the set of adaptive styles as predictor variables for the dependent variable, social competence. Because the predictor variable is categorical, adaptive style groups were dummy coded prior to conducting the regression. Repressive adaptive style was used as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .2.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of -.24 and kurtosis of -.47 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix DD).

Multiple Regression Results. Using multiple regression, social competence scores were regressed on the linear combination of adaptive styles. The equation containing these four dummy-coded variables accounted for approximately 7% of observed variance in social competence, F(3,175) = 4.68, *p* =.0036, adjusted R^2 = .06. Beta weights are presented in Table 31. A review of these revealed that one predictor displayed a significant beta weight. High Anxious exhibited a positive relationship with Social Competence (β = .20, *p* = .0394).

Adaptive Styles and Coping Strategy Types Predicting Social Competence

Multiple Regression, Model One. The first model examined the combination of the two coping strategy types (adaptive coping and non-adaptive coping) and the set of four adaptive styles as predictors for the outcome variable, social competence. Because adaptive style is categorical, the four styles were dummy coded, with repressive adaptive style identified as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .2. Multicollinearity did not appear to pose a problem for this model.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of .31 and kurtosis of -.75 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix EE).

Multiple Regression Results. Using multiple regression, social competence scores were regressed on the linear combination of coping strategy types and adaptive styles. The equation containing these six variables accounted for approximately 29% of observed variance in social competence, $F(5, 173) = 14.36$, $p < .0001$, adjusted $R^2 = .27$. Beta weights are presented in Table 32. A review of these revealed that three predictors displayed significant beta weights. Two had positive relationships: Adaptive Coping ($\beta = .45$, $p < .0001$) and High Anxious ($\beta = .28$, $p = .0013$). One displayed a negative relationship: Non-adaptive Coping ($\beta = -.27$, $p = .0005$).

Multiple Regression, Model Two. The second model examined the set of coping strategy types as predictors for the outcome variable, social competence.

Table 32

Multiple Regression: Coping Strategy Types and Adaptive Styles Predicting Social Competence

	B	SE *B*	β	t	
Model 1					
Intercept	32.49	3.13	0	10.36	***
Adaptive Coping	.25	.04	.45	6.89	***
Non-adaptive Coping	0.33	.09	-.27	-3.54	**
Low Anxious	.99	1.72	.05	.57	
High Anxious	5.28	1.61	.28	3.27	**
Defensive High Anxious	-2.63	2.33	-.09	-1.13	
Model 2					
Intercept	34.09	2.93	0	11.63	***
Adaptive Coping	.24	.04	.42	6.21	***
Non-adaptive Coping	-.27	.08	-.22	-3.30	**
Model 3					
Intercept	38.84	1.46	0	26.68	***
Low Anxious	2.66	1.90	.13	1.40	
High Anxious	3.72	1.79	.20	2.08	*
Defensive High Anxious	-4.34	2.54	-.14	-1.70	

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

Note: $R^2 = .29$ for Model 1: $\Delta R^2 = -.09$ for Model 2: $\Delta R^2 = -.13$ for Model 3.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .2.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of .01 and kurtosis of -.90 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix FF).

Multiple Regression Results. Using multiple regression, social competence scores were regressed on the linear combination of the two coping strategy types. The equation containing these two variables accounted for approximately 20% of observed variance in social competence, $F(2, 176) = 22.56$, $p < .0001$, adjusted $R^2 = .20$. Beta weights are presented in Table 32. A review of these revealed that both predictors displayed significant beta weights. Adaptive coping had a

positive relationship (β = .42, p <.0001), and non-adaptive coping exhibited a negative relationship to social competence (β = -.22, p = .0012).

Multiple Regression, Model Three. The third model examined the set of adaptive styles as predictor variables for the dependent variable, social competence. Because the predictor variable is categorical, adaptive style groups were dummy coded prior to conducting the regression. Repressive adaptive style was used as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .2.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of -.24 and kurtosis of -.47 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix DD).

Multiple Regression Results. Using multiple regression, social competence scores were regressed on the linear combination of adaptive styles. The equation containing these four dummy-coded variables accounted for approximately 7% of observed variance in subjective well-being, F(3,175) = 4.68, p =.0036, adjusted R^2 = .06. Beta weights are presented in Table 32. A review of these revealed that one predictor displayed a significant beta weight. High Anxious exhibited a positive relationship with Social Competence (β = .20, p = .0394).

Summary of Research Question Nine

The results of the multiple regression analyses examining adaptive styles, coping strategies and coping strategy types as predictors of psychosocial well-being and risk are summarized in Table 33. In this table, it is indicated if a variable had a statistically significant positive (+) or negative (-) effect in Model 1, which controlled for other factors in addition to the

set to which the variable belonged, and/or in Model 2 or 3, the simplified models that did not control for other factors. It is evident that there are statistically significant variables that remain consistent across multiple models. For example, High Anxious and Defensive High Anxious adaptive styles had consistent statistically significant positive associations with internalizing behaviors, as compared to Repressive adaptive style. High Anxious adaptive style had consistent statistically significant positive associations with social competence as well. Adaptive coping was consistently associated with positive outcomes, with a positive statistically significant association with social competence across models and a negative association with internalizing behaviors across models.

Table 33

Summary of Multiple Regression Analyses: Adaptive Styles, Coping Strategies and Coping Strategy Types as Predictors of Psychosocial Risk and Adjustment

	Risk - Internalizing		Risk -Externalizing		Adjustment - Social	
	Model 1	Models 2 & 3	Model 1	Models 2 & 3	Model 1	Models 2 & 3
Adaptive Styles & Coping Strategies						
Acceptance		+				+
Planning		-			+	+
Positive Refocusing						-
Positive Reappraisal						+
Putting in Perspective	-	-				
Self-Blame					-	-
Other Blame			+	+		-
Rumination		+	+			
Catastrophizing					+	+
Low Anxious			+			
High Anxious	+	+			+	+
Def High Anxious	+	+	-		-	
Adaptive Styles & Coping Strategy Types						
Adaptive Coping	-	-			+	+
Non-Adaptive Coping		+			-	-
Low Anxious						
High Anxious	+	+			+	+
Def High Anxious	+	+				

Research Question Ten

Multiple Regression

Question ten examines which combination of adaptive styles and coping strategies best predict educational outcomes, as measured by the School Scale of the CBCL, engagement in special education services and grade promotion. As these outcome variables consist of both continuous (CBCL School Scale score) and categorical (engagement in special education services and grade promotion) variables, two types of analyses were required. Multiple regressions were used to determine what set of independent variables (adaptive style category and/or coping strategies) best predict education outcome, as measured by the CBCL. A logistic regression was conducted for each of the education outcome variables that are dichotomous (grade promotion and engagement in special education). Model building used for the previous multiple regression analyses was also used for these logistic regressions.

Two sets of models were run for each of the outcome variables. The first included the four adaptive styles and all nine coping strategies as predictor variables. The second set of models included four adaptive styles and two coping strategy types as predictor variables. The two coping strategies were adaptive coping (the total score for the set of five adaptive coping strategies on the CERQ) and non-adaptive adaptive coping (the total score for the set of 4 non-adaptive coping strategies on the CERQ).

Multicollinearty. First, multicollinearity of the independent variables was examined for each of the regression analyses conducted by reviewing the correlations between predictor variables. The variance inflation factors and tolerance statistics were also reviewed. No correlations between predictor variables were greater than .9, but three were greater than .8 in models that included all nine coping strategies: Planning and Positive Reappraisal (r= .8407),

Positive Reappraisal and Positive Refocusing (r= .8140), and Planning and Positive Refocusing (r= .8263). These correlation coefficients varied slightly between the three sets of analyses (those conducted for School Scale score, special education participation, and grade promotion), but all were slightly above .8 (.81< r > .84). Variance inflation factors and tolerance statistics are specific to the regression model and are reported for each model below.

Normality and Homogeneity. Descriptive statistics and residual plots were examined to check the assumptions that residuals were normal and homoscedastic. For the examination of univariate normality of residuals across all three models, skewness and kurtosis were calculated. Skewness of-.61 and kurtosis of .16 suggested approximate normal distribution of residuals. All observations were within the possible range of scores. Results of the examination of residual plots, skewness and kurtosis are reported for each model below.

Adaptive Styles and Coping Strategies as Predictors of School Scale Score

Multiple Regression, Model One. The first model examined the combination of the set of nine coping strategies and the set of four adaptive styles as predictors for the outcome variable, school scale score. Because adaptive style is categorical, the four styles were dummy coded, with repressive adaptive style identified as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .1, but three had tolerance of less than .2, which may indicate a potential problem. These were Positive Refocusing (.1799), Planning (.1185), and Positive Reappraisal (.1549). These results were taken into consideration when interpreting the regression results.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of -.34 and kurtosis of -.17

suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix GG).

Multiple Regression Results. Using multiple regression, School Scale scores were regressed on the linear combination of coping strategies and adaptive styles. The equation containing these 13 variables accounted for approximately 54% of observed variance in school scale scores, $F(12, 166) = 16.45$, $p < .0001$, adjusted $R^2 = .51$. Beta weights are presented in Table 34. These were reviewed to assess the relative importance of the 13 variables in the prediction of School Scale scores on the CBCL. Seven variables displayed significant beta weights. Two of these exhibited positive relationships with School Scale Scores: Planning ($\beta = .49$, $p = .0016$), and Catastrophizing ($\beta = .33$, $p < .0001$). The remaining five had negative relationships with School Scale Scores: Self-Blame ($\beta = -.53$, $p < .0001$), Acceptance ($\beta = -.18$, $p = .0361$), Positive Refocusing ($\beta = -.39$, $p = .0020$), Other Blame ($\beta = -.25$, $p = .0005$) and Defensive High Anxious ($\beta = -.34$, $p < .0001$).

Multiple Regression, Model Two. The second model examined the set of coping strategies as predictors for the outcome variable.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .1, but the same three predictor variables as in Model One had tolerance of less than .2. These were Positive Refocusing (.1986), Planning (.1491), and Positive Reappraisal (.1714). These results were taken into consideration when interpreting the regression results.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of -.76 and kurtosis of .37

suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix HH).

Multiple Regression Results. Using multiple regression, School Scale scores were regressed on the linear combination of coping strategies. The equation containing these 9 variables accounted for approximately 48% of observed variance in School Scale Scores, $F(9,169) = 17.66$, $p < .0001$, adjusted $R^2 = .46$. Beta weights are presented in Table 34. A review of these revealed that seven predictors displayed significant beta weights. Two had positive relationships: Planning ($\beta = .70$, $p < .0001$) and Catastrophizing ($\beta = .28$, $p = .0007$). The remaining five displayed negative relationships: Self-Blame ($\beta = -.53$, $p < .0001$), Acceptance ($\beta = -.15$, $p = .0363$), Rumination ($\beta = -.31$, $p = .0002$), Positive Refocusing ($\beta = -.48$, $p = .0001$), and Other Blame ($\beta = -.26$, $p = .0004$).

Multiple Regression, Model Three. The third model examined the set of adaptive styles as predictor variables for the dependent variable, School Scale score. Because the predictor variable is categorical, adaptive style groups were dummy coded prior to conducting the regression. Repressive Adaptive Style was used as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .2.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of -.61 and kurtosis of .16 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix II).

Multiple Regression Results. Using multiple regression, School Scale scores were regressed on the linear combination of adaptive styles. The equation containing these four

dummy-coded variables accounted for approximately 23% of observed variance in School Scale scores, F(3,175) = 17.04, p < .0001, adjusted R2 = .21. Beta weights are presented in Table 34. A review of these revealed that two predictors displayed significant beta weights. Both of these were negative: High Anxious (β = -.42, *p* <.0001) and Defensive High Anxious (β = -.36, p < .0001).

Table 34

Multiple Regression: Adaptive Styles and Coping Strategies Predicting School Scale Scores

	B	SE *B*	β	t	
Model 1					
Intercept	61.66	2.82	0	21.83	***
Acceptance	-.43	.20	-.18	-2.11	*
Planning	1.01	.32	.49	3.21	**
Positive Refocusing	-.79	.25	-.39	-3.14	**
Positive Reappraisal	.21	.26	.11	.81	
Putting in Perspective	-.11	.20	-.05	-.53	
Self-Blame	-1.39	.17	-.53	-8.14	***
Other Blame	-1.50	.42	-.25	-3.57	**
Rumination	-.27	.22	-.12	-1.22	
Catastrophizing	1.17	.28	.33	4.21	***
Low Anxious	-.09	1.48	.00	-.06	
High Anxious	-2.88	1.69	-.16	-1.70	
Defensive High Anxious	-9.83	2.15	-.34	-4.58	***
Model 2					
Intercept	63.38	2.71	0	23.42	***
Acceptance	-.37	.18	-.15	-2.11	*
Planning	1.45	.30	.70	4.89	***
Positive Refocusing	-.98	.25	-.48	-3.91	**
Positive Reappraisal	.30	.26	.15	1.12	
Putting in Perspective	-.37	.20	-.18	-1.88	
Self-Blame	-1.37	.18	-.53	-7.81	***
Other Blame	-1.5	.42	-.26	-3.63	**
Rumination	-.71	.18	-.31	-3.84	**
Catastrophizing	1.00	.29	.28	3.47	**
Model 3					
Intercept	52.49	1.27	0	41.28	***
Low Anxious	.13	1.66	.01	.08	
High Anxious	-7.46	1.56	-.42	-4.77	***
Defensive High Anxious	-10.32	2.22	-.36	-4.64	***

*p < .05 **p < .01 ***p < .0001

Note: R^2 = .54 for Model 1: Δ R^2 = -.06 for Model 2: Δ R^2 = -.25 for Model 3.

Adaptive Styles and Coping Strategy Types as Predictors of School Scale Scores

Multiple Regression, Model One. This model examined the combination of the set of two coping strategy types and the set of four adaptive styles as predictors for the outcome variable, School Scale scores. Because adaptive style is categorical, the four styles were dummy coded, with repressive adaptive style identified as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .2.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of -.17 and kurtosis of -.22 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix JJ).

Multiple Regression Results. Using multiple regression, School Scale scores were regressed on the linear combination of the set of two coping strategy types and the set of four adaptive styles. The equation containing these six variables accounted for approximately 35% of observed variance in school scale scores, $F(5, 173) = 18.62$, $p < .0001$, adjusted $R2 = .33$. Beta weights are presented in Table 35. These were reviewed to assess the relative importance of the six variables in the prediction of School Scale scores on the CBCL. Three variables displayed significant beta weights. Each of these was negatively associated with the School Scale scores: Non-adaptive coping strategy score ($\beta = -.41$, $p < .0001$), High Anxious ($\beta = -.32$, $p = .0002$) and Defensive High Anxious ($\beta = -.25$, $p = .0010$).

Multiple Regression, Model Two. The second model examined the set of coping strategy types as predictors for the outcome variable.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .2.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of -.46 and kurtosis of -.17 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix KK).

Multiple Regression Results. Using multiple regression, School Scale scores were regressed on the linear combination of two coping strategy types. The equation containing these two variables accounted for approximately 28% of observed variance in School Scale Scores, $F(2, 176) = 34.42$, $p < .0001$, adjusted $R^2 = .27$. Beta weights are presented in Table 35. A review of these revealed that both of these predictors displayed significant beta weights. Adaptive coping strategy style had a positive relationship ($\beta = .14$, $p = .0354$) and non-adaptive coping strategy style had a negative relationship ($\beta = -.53$, $p < .0001$).

Multiple Regression, Model Three. The third model examined the set of adaptive styles as predictor variables for the dependent variable, School Scale score. Because the predictor variable is categorical, adaptive style groups were dummy coded prior to conducting the regression. Repressive Adaptive Style was used as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .2.

Normality and Homogeneity. For the examination of univariate normality of residuals for this model, skewness and kurtosis were calculated. Skewness of -.61 and kurtosis of .16 suggested approximate normal distribution of residuals. The plots of the residuals with predicted values showed no substantial violations to the homogeneity assumption (see Appendix II).

Table 35

Multiple Regression: Adaptive Styles and Coping Strategy Types Predicting School Scale Scores

	B	SE *B*	β	t	
Model 1					
Intercept	60.81	2.87	0	21.17	***
Adaptive Coping	.06	.03	.12	1.88	
Non-adaptive Coping	0.48	.08	-.41	-5.65	***
Low Anxious	-2.03	1.58	-.11	-1.29	
High Anxious	-5.59	1.48	-.32	-3.78	**
Defensive High Anxious	-7.12	2.13	-3.34	-.25	**
Model 2					
Intercept	60.20	2.66	0	22.62	***
Adaptive Coping	.07	.04	.14	2.12	*
Non-adaptive Coping	-.61	.07	-.53	-8.22	***
Model 3					
Intercept	52.49	1.27	0	41.28	***
Low Anxious	.13	1.66	.01	.08	
High Anxious	-7.46	1.56	-.42	-4.77	***
Defensive High Anxious	10.32	2.22	-.36	-4.64	***

*$p < .05$ ** $p < .01$ *** $p < .0001$

Note: $R^2 = .35$ for Model 1: $\Delta R^2 = -.07$ for Model 2: $\Delta R^2 = -.05$ for Model 3.

Multiple Regression Results. Using multiple regression, School Scale scores were regressed on the linear combination of adaptive styles. The equation containing these four dummy-coded variables accounted for approximately 23% of observed variance in School Scale Scores, $F(3,175) = 17.04$, $p < .0001$, adjusted $R^2 = .21$. Beta weights are presented in Table 35. A review of these revealed that two predictors displayed significant beta weights. Both of these relationships were negative: High Anxious ($\beta = -.42$, $p < .0001$) and Defensive High Anxious ($\beta = -.36$, $p < .0001$).

Logistic Regression

Logistic regressions were performed to examine what set of independent variables best predicts education outcomes as measured by engagement in special education services and by

grade promotion after diagnosis. Two sets of logistic regressions were conducted for each of these outcome variables. The first set involved the four adaptive styles and nine coping strategies as predictor variables. The second set included the set of adaptive styles and two coping strategy types, adaptive (the sum of scores for each of the five adaptive coping strategies on the CERQ) and non-adaptive (the sum of scores for each of the four coping strategies on the CERQ).

Adaptive Styles and Coping Strategies as Predictors of Special Education

Logistic Regression, Model One. The first model examined the combination of the set of nine coping strategies and the set of four adaptive styles as predictors for the categorical outcome variable, engagement in special education services. Because adaptive style is categorical, the four styles were dummy coded, with repressive adaptive style identified as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .1, but three had tolerance of less than .2, which may indicate a potential problem. These were Positive Refocusing (.1894), Planning (.1115), and Positive Reappraisal (.1556). These results were taken into consideration when interpreting the regression results.

Convergence. A quasi-complete separation of data points was detected in this model, indicating that an independent variable in the model has a strong, but non-infinite effect on the dependent variable. No youth identified with a Defensive High Anxious adaptive style were enrolled in ESE after diagnosis, thus triggering the quasi-complete separation. The decision was made to leave the variable in the model, as the coefficients, standard errors, and test statistic for the remaining variables remain valid as estimations of maximum likelihood. The number of

youth who received special education services is displayed in Table 36 for each adaptive style category.

Logistic Regression Results. The likelihood ratio test indicated that the model was statistically significant, $\chi 2(12) = 188.18$, $p < .0001$. Maximum Likelihood Estimation was used to calculate the logit coefficients, indicating if the b coefficient for each predictor significantly differed from zero. Beta values are presented in Table 37. A review of these revealed that six predictors displayed significant beta values. Three of these were positively associated with not being enrolled in special education services: Planning ($B = .97$, $p = .0323$), Catastrophizing ($B = 1.13$, $p = .0115$) and Other Blame ($B = 2.12$, $p = .0008$). Three were negatively associated with not receiving special education services: Self-Blame ($B = -1.18$, $p = .0493$), Rumination ($B = -1.12$, $p = .0010$), and Positive Refocusing ($B = -2.46$, $p = .0001$). Calculated odds ratios for each predictor are also presented in Table 37 and indicate the predicted odds of not receiving special education services. Wald Confidence Intervals were also calculated for predictor variables with a level of 95% confidence to indicate that upon repeated trials, 95% of the Confidence Intervals would include the true population odds ratio. Finally, the deviance value for the Intercept and Covariates of this model (-2LogL = 34.53) is provided in the notes of Table 37 to assist in comparing the models.

Table 36

Distribution of Special Education by Adaptive Style

Demographic Variables	Repressor		Low Anxious		High Anxious		Def High Anx	
	n	%	n	%	n	%	n	%
ESE Services								
Enrolled	12	32	14	33	44	61	0	0
Not Enrolled	26	68	29	67	28	39	10	100

Table 37

Logistic Regression: Adaptive Styles and Coping Strategies Predicting Special Education

	B(SE)	Wald χ^2		Odds Ratio(95%CI)
Model 1				
Intercept	11.10(4.33)	6.58	*	
Acceptance	-.35(.29)	1.45		.10(.40, 1.24)
Planning	.97(.46)	4.58	*	2.65(1.09, 6.46)
Positive Refocusing	-2.46(.65)	14.48	**	.09(.02, .30)
Positive Reappraisal	.71(.39)	3.25		2.04(.94, 4.42)
Putting in Perspective	.12(.29)	.17		1.13(.64, 1.99)
Self-Blame	-1.18(.60)	3.87	*	.31(.10, 1.0)
Other Blame	2.12(.63)	11.22	**	8.36(2.41, 28.94)
Rumination	-1.12(.34)	10.80	**	.33(.17, .64)
Catastrophizing	1.13(.45)	6.39	*	3.09(1.29, 7.43)
Low Anxious	2.82(1.84)	2.36		16.84(.46, 619.75)
High Anxious	.16(1.88)	.01		1.17(.03, 46.49)
Defensive High Anxious	19.97(298.60)	.00		>1000(0, >1000)
Model 2				
Intercept	11.36(3.71)	9.40	**	
Acceptance	-.64(.18)	12.64	**	.53(.37, .75)
Planning	.75(.25)	8.69	**	2.12(1.29, 3.49)
Positive Refocusing	-1.64(.35)	22.65	***	.19(.10, .38)
Positive Reappraisal	.20(.23)	.79		1.23(.78, 1.93)
Putting in Perspective	.39(.18)	4.51	*	1.47(1.03, 2.10)
Self-Blame	-1.25(.43)	8.55	**	.29(.12, .66)
Other Blame	1.61(.48)	10.99	**	4.99(1.93, 12.91)
Rumination	-.74(.19)	15.67	***	.48(.33, .69)
Catastrophizing	.99(.30)	10.49	**	2.68(1.48, 4.87)
Model 3				
Intercept	.77(.35)	4.91	*	
Low Anxious	-.05(.48)	.01		.96(.38, 2.44)
High Anxious	-1.23(.42)	8.33	**	.29(.13, .68)
Defensive High Anxious	13.46(389.6)	.00		>1000(0, >1000)

* $p < .05$ ** $p < .01$ *** $p < .0001$

Note: -2LogL for Intercept Only = 222.71

-2LogL for Intercept and Covariates Model 1 = 34.53

-2LogL for Intercept and Covariates Model 2 = 51.16

-2LogL for Intercept and Covariates Model 3 = 197.89

Logistic Regression, Model Two. This model examined the set of nine coping strategies as predictors for the categorical outcome variable, engagement in special education services.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .1, but two had tolerance of less than .2, which may indicate a potential problem. These were Planning (.1442), and Positive Reappraisal (.1721). These results were taken into consideration when interpreting the regression results.

Convergence. Convergence criterion was satisfied.

Logistic Regression Results. The likelihood ratio test indicated that the model was statistically significant, $\chi 2(9)=171.55$, $p<.0001$. Maximum Likelihood Estimation was used to calculate the logit coefficents, indicating if the b coefficient for each predictor significantly differed from zero. Beta values are presented in Table 37. A review of these revealed that eight predictors displayed significant beta values. Four of these were positive: Planning (B = .75, p = .0032), Putting in Perspective (B = .39, p=.0337), Catastrophizing (B = .99, p =.0012), and Other Blame (B = 1.61, *p* =.0009). Four were negative: Self-Blame (B = -1.25, *p* =.0035), Acceptance (B= -.64, *p* = .0004), Rumination (B = -.74, *p* < .0001), and Positive Refocusing (B = -1.64, *p* < .0001). Calculated odds ratios for each predictor are also presented in Table 37 and indicate the predicted odds of not receiving special education services. Wald Confidence Intervals were also calculated for predictor variables with a level of 95% confidence to indicate that upon repeated trials, 95% of the Confidence Intervals would include the true population odds ratio. Finally, the deviance value for the Intercept and Covariates of this model (-2LogL = 51.16) is provided in the notes of Table 37 to assist in comparing the models.

Logistic Regression, Model Three. The third model examined the set of four adaptive styles as predictors for the categorical outcome variable, receiving special education services. Because adaptive style is categorical, the four styles were dummy coded, with repressive adaptive style identified as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10 and none of the predictor variables had tolerance less than .2.

Convergence. A quasi-complete separation of data points was detected in this model, indicating that an independent variable in the model has a strong, but non-infinite effect on the dependent variable. The problematic variable was the Defensive High Anxious indicator variable, and again the decision was made to leave the variable in the model, as the coefficients, standard errors, and test statistic for the remaining variable remain valid as estimations of maximum likelihood. The quasi-complete separation was triggered by having no youth in the Defensive High Anxious group engaged in special education services after diagnosis. The number of youth receiving special education services for each adaptive style category can be seen above in Table 36.

Logistic Regression Results. The likelihood ratio test indicated that the model was statistically significant, $\chi 2(3) = 24.82$, $p < .0001$. Maximum Likelihood Estimation was used to calculate the logit coefficients, indicating if the b coefficient for each predictor significantly differed from zero. Beta values are presented in Table 37. A review of these revealed that one of the predictors displayed a significant beta value. High Anxious adaptive style exhibited a negative relationship with the outcome variable (B = -1.23, $p = .0039$). Calculated odds ratios for each predictor are also presented in Table 37 and indicate the predicted odds of not receiving special education services. Wald Confidence Intervals were also calculated for predictor variables with a level of 95% confidence to indicate that upon repeated trials, 95% of the Confidence Intervals would include the true population odds ratio. Finally, the deviance value for the Intercept and Covariates of this model (-2LogL = 197.89) is provided in the notes of Table 37 to assist in comparing the models.

Adaptive Styles and Coping Strategy Types as Predictors of Special Education

Logistic Regression, Model One. The first model examined the combination of the set of two coping strategy types and the set of four adaptive styles as predictors for the categorical outcome variable, participation in special education. Because adaptive style is categorical, the four styles were dummy coded, with Repressive adaptive style identified as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .2.

Convergence. A quasi-complete separation of data points was detected in this model, indicating that an independent variable in the model has a strong, but non-infinite effect on the dependent variable. No youth identified with a Defensive High Anxious adaptive style participated in special education services after diagnosis, thus triggering the quasi-complete separation. The decision was made to leave the variable in the model, as the coefficients, standard errors, and test statistic for the remaining variables remain valid as estimations of maximum likelihood.

Logistic Regression Results. The likelihood ratio test indicated that the model was statistically significant, $\chi 2(5) = 26.36$, $p < .0001$. Maximum Likelihood Estimation was used to calculate the logit coefficents, indicating if the b coefficient for each predictor significantly differed from zero. Beta values are presented in Table 38. A review of these revealed that one predictor displayed a significant beta value. The High Anxious adaptive style exhibited a negative relationship with not being in ESE services (B = -1.29, $p = .0029$). Calculated odds ratios for each predictor are also presented in Table 35 and indicate the predicted odds of not receiving special education services. Wald Confidence Intervals were also calculated for predictor variables with a level of 95% confidence to indicate that upon repeated trials, 95% of

the Confidence Intervals would include the true population odds ratio. Finally, the deviance value for the Intercept and Covariates of this model (-2LogL = 196.35) is provided in the notes of Table 38 to assist in comparing the models.

Logistic Regression, Model Two. This model examined the set of two coping strategy types, adaptive and non-adaptive, as predictors for the categorical outcome variable, participation in special education services.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .2.

Convergence. Convergence criterion was satisfied.

Logistic Regression Results. The likelihood ratio test indicated that the model was not statistically significant, $\chi 2(2) = 1.5$, $p = .4714$. Maximum Likelihood Estimation was used to

Table 38

Logistic Regression: Adaptive Styles and Coping Strategy Types Predicting Special Education

	B(SE)	Wald χ^2		Odds Ratio(95%CI)
Model 1				
Intercept	1.81(.94)	3.69		
Adaptive Coping	-.01(.01)	1.06		.99(.97, 1.01)
Non-adaptive Coping	-.01(.02)	.33		.99(.95, 1.03)
Low Anxious	-.08(.48)	.03		.92(.36, 2.37)
High Anxious	-1.29(.43)	8.86	**	.28(.12, .65)
Defensive High Anxious	13.35(388.2)	.00		>1000 (0, >1000)
Model 2				
Intercept	1.09(.79)	1.93		
Adaptive Coping	-.01(.01)	1.37		.99(.97, 1.01)
Non-adaptive Coping	.00(.02)	.05		1.00(.96, 1.04)
Model 3				
Intercept	.77(.35)	4.91	*	
Low Anxious	-.05(.48)	.01		.96(.38, 2.44)
High Anxious	-1.23(.42)	8.33	*	.29(.13, .68)
Defensive High Anxious	13.46(389.6)	.00		>1000(0, >1000)

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

Note: -2LogL for Intercept Only = 222.71
-2LogL for Intercept and Covariates Model 1 = 196.35
-2LogL for Intercept and Covariates Model 2 = 221.21
-2LogL for Intercept and Covariates Model 3 = 197.89

calculate the logit coefficents, indicating if the b coefficient for each predictor significantly differed from zero. Beta values are presented in Table 38. A review of these revealed that neither predictor displayed significant beta values. Calculated odds ratios for each predictor are also presented in Table 38 and indicate the predicted odds of not receiving special education services. Wald Confidence Intervals were also calculated for predictor variables with a level of 95% confidence to indicate that upon repeated trials, 95% of the Confidence Intervals would include the true population odds ratio. Finally, the deviance value for the Intercept and Covariates of this model (-2LogL = 221.21) is provided in the notes of Table 38 to assist in comparing the models.

Logistic Regression, Model Three. The third model examined the set of four adaptive styles as predictors for the categorical outcome variable, engagement in special education. Because adaptive style is categorical, the four styles were dummy coded, with repressive adaptive style identified as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10 and none of the predictor variables had tolerance less than .2.

Convergence. A quasi-complete separation of data points was detected in this model, indicating that an independent variable in the model has a strong, but non-infinite effect on the dependent variable. The problematic variable was the defensive high anxious indicator variable, and again the decision was made to leave the variable in the model, as the coefficients, standard errors, and test statistic for the remaining variable remain valid as estimations of maximum likelihood. The quasi-complete separation was triggered by having no youth in the Defensive

High Anxious group utilizing special education services after diagnosis. The number of youth enrolled for each adaptive style category can be seen above in Table 36.

Logistic Regression Results. The likelihood ratio test indicated that the model was statistically significant, $\chi 2(3) = 24.82$, $p < .0001$. Maximum Likelihood Estimation was used to calculate the logit coefficents, indicating if the b coefficient for each predictor significantly differed from zero. Beta values are presented in Table 38. A review of these revealed that one of the predictors displayed a significant beta value. High Anxious exhibited a negative relationship with the outcome variable ($B = -1.23$, $p = .0039$). Calculated odds ratios for each predictor are also presented in Table 38 and indicate the predicted odds of not receiving special education services. Wald Confidence Intervals were also calculated for predictor variables with a level of 95% confidence to indicate that upon repeated trials, 95% of the Confidence Intervals would include the true population odds ratio. Finally, the deviance value for the Intercept and Covariates of this model (-2LogL = 197.89) is provided in the notes of Table 38 to assist in comparing the models.

Adaptive Styles and Coping Strategies as Predictors of Grade Promotion

Logistic Regression, Model One. The first model examined the combination of the set of nine coping strategies and the set of four adaptive styles as predictors for the categorical outcome variable, grade promotion. Because adaptive style is categorical, the four styles were dummy coded, with repressive adaptive style identified as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .1, but three had tolerance of less than .2, which may indicate a potential problem. These were Positive Refocusing (.1799), Planning (.1161), and

Positive Reappraisal (.1522). These results were taken into consideration when interpreting the regression results.

Convergence. A quasi-complete separation of data points was detected in this model, indicating that an independent variable in the model has a strong, but non-infinite effect on the dependent variable. All youth were promoted that were categorized as having repressive or low anxious adaptive styles, thus triggering the quasi-complete separation. The decision was made to leave the variables in the model, as the coefficients, standard errors, and test statistic for the remaining variable remain valid as estimations of maximum likelihood. The number of youth who achieved grade promotion in each adaptive style category can be examined in Table 39.

Logistic Regression Results. The likelihood ratio test indicated that the model was statistically significant, $\chi 2(12) = 76.10$, $p < .0001$. Maximum Likelihood Estimation was used to calculate the logit coefficents, indicating if the b coefficient for each predictor significantly

Table 39

Distribution of Grade Promotion/Retention across Adaptive Styles

	Repressor		Low Anxious		High Anxious		Def High Anx	
	n	%	n	%	n	%	n	%
Promoted	38	100	52	100	63	88	17	94
Retained	0	0	0	0	9	13	1	6

differed from zero. Beta values are presented in Table 40. A review of these revealed that none of the predictors displayed significant beta values. Calculated odds ratios for each predictor are also presented in Table 40 and indicate the predicted odds of being promoted. Wald Confidence Intervals were also calculated for predictor variables with a level of 95% confidence to indicate that upon repeated trials, 95% of the Confidence Intervals would include the true population odds ratio. Finally, the deviance value for the Intercept and Covariates of this model (-2LogL = 1.15) is provided in the notes of Table 40 to assist in comparing the models.

Table 40

Logistic Regression: Adaptive Styles and Coping Strategies Predicting Grade Promotion

	B(SE)	Wald χ^2	Odds Ratio(95%CI)
Model 1			
Intercept	28.43(47.18)	.36	
Acceptance	-4.68(3.81)	1.51	.01(0, 16.17)
Planning	-5.27(4.91)	1.16	.01(0, 76.80)
Positive Refocusing	2.48(7.56)	.11	11.90(0, >1000)
Positive Reappraisal	-1.26(6.69)	.04	.28(0, >1000)
Putting in Perspective	4.25(3.65)	1.35	69.95(.05, >1000)
Self-Blame	.64(3.06)	.04	1.90(.01, 760.02)
Other Blame	1.85(2.66)	.48	6.36(.04, >1000)
Rumination	2.69(4.47)	.36	14.71(0, >1000)
Catastrophizing	1.77(3.00)	.35	5.87(.02, >1000)
Low Anxious	36.25(30.35)	1.43	>1000(0, >1000)
High Anxious	-10.14(26.52)	.15	0(0, >1000)
Defensive High Anxious	-52.86(38.39)	1.90	0(0, >1000)
Model 2			
Intercept	11.84(9.71)	1.49	
Self-Blame	-.30(.40)	.55	.75(.34, 1.63)
Acceptance	.08(.57)	.02	1.08(.35, 3.31)
Rumination	-.38(.43)	.74	.69(.29, 1.61)
Positive Refocusing	-.42(.58)	.54	.65(.21 2.03)
Planning	.59(.70)	.71	1.81(.46, 7.11)
Positive Reappraisal	-.88(.78)	1.29	.41(.09, 1.90)
Putting in Perspective	.24(.52)	.20	1.27(.45, 3.54)
Catastrophizing	.40(.59)	.47	1.50(.47, 4.78)
Other Blame	.60(.51)	1.39	1.83(.67, 5.01)
Model 3			
Intercept	13.92(171.3)	.01	
Low Anxious	-976E-13(225.3)	0	1.00(0, >1000)
High Anxious	-11.98(171.3)	0	0(0, >1000)
Defensive High Anxious	-11.09(171.3)	0	0(0, >1000)

Note: -2LogL for Intercept Only = 77.24
-2LogL for Intercept and Covariates Model 1 = 1.15
-2LogL for Intercept and Covariates Model 2 = 16.53
-2LogL for Intercept and Covariates Model 3 = 61.98

Logistic Regression, Model Two. This model examined the set of nine coping strategies as predictors for the categorical outcome variable, grade promotion.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .1, but three had tolerance of less than .2, which may indicate a potential problem. These were Positive Refocusing (.1985), Planning (.1466), and Positive Reappraisal (.1685). These results were taken into consideration when interpreting the regression results.

Convergence. Convergence criterion was satisfied.

Logistic Regression Results. The likelihood ratio test indicated that the model was statistically significant, $\chi 2(9) = 60.71$, $p < .0001$. Maximum Likelihood Estimation was used to calculate the logit coefficents, indicating if the b coefficient for each predictor significantly differed from zero. Beta values are presented in Table 40. A review of these revealed that none of the predictors displayed significant beta values. Calculated odds ratios for each predictor are also presented in Table 40 and indicate the predicted odds of being promoted. Wald Confidence Intervals were also calculated for predictor variables with a level of 95% confidence to indicate that upon repeated trials, 95% of the Confidence Intervals would include the true population odds ratio. Finally, the deviance value for the Intercept and Covariates of this model (-2LogL = 16.53) is provided in the notes of Table 40 to assist in comparing the models.

Logistic Regression, Model Three. The third model examined the set of four adaptive styles as predictors for the categorical outcome variable, grade promotion. Because adaptive style is categorical, the four styles were dummy coded, with Repressive adaptive style identified as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10 and none of the predictor variables had tolerance less than .2.

Convergence. A quasi-complete separation of data points was detected in this model, indicating that an independent variable in the model has a strong, but non-infinite effect on the dependent variable. All youth were promoted that were categorized as having repressive or low anxious adaptive styles, thus triggering the quasi-complete separation. The number of youth promoted for each adaptive style can be seen above in Table 39. The decision was made to leave the variables in the model, as the coefficients, standard errors, and test statistic for the remaining variable remain valid as estimations of maximum likelihood.

Logistic Regression Results. The likelihood ratio test indicated that the model was statistically significant, $\chi 2(3) = 15.26$, $p = .0016$. Maximum Likelihood Estimation was used to calculate the logit coefficents, indicating if the b coefficient for each predictor significantly differed from zero. Beta values are presented in Table 40. A review of these revealed that none of the predictors displayed a significant beta value. Calculated odds ratios for each predictor are also presented in Table 40 and indicate the predicted odds of being promoted. Wald Confidence Intervals were also calculated for predictor variables with a level of 95% confidence to indicate that upon repeated trials, 95% of the Confidence Intervals would include the true population odds ratio. Finally, the deviance value for the Intercept and Covariates of this model (-2LogL = 61.98) is provided in the notes of Table 40 to assist in comparing the models.

Adaptive Styles and Coping Strategy Types as Predictors of Grade Promotion

Logistic Regression, Model One. The first model examined the combination of the set of two coping strategy types and the set of four adaptive styles as predictors for the categorical

outcome variable, grade promotion. Because adaptive style is categorical, the four styles were dummy coded, with repressive adaptive style identified as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .2

Convergence. A quasi-complete separation of data points was detected in this model, indicating that an independent variable in the model has a strong, but non-infinite effect on the dependent variable. All youth were promoted that were categorized as having Repressive or Low Anxious adaptive styles, thus triggering the quasi-complete separation. The decision was made to leave the variables in the model, as the coefficients, standard errors, and test statistic for the remaining variable remain valid as estimations of maximum likelihood. The number of youth who achieved grade promotion in each adaptive style category can be examined in Table 39.

Logistic Regression Results. The likelihood ratio test indicated that the model was statistically significant, $\chi 2(5) = 60.36$, $p < .0001$. Maximum Likelihood Estimation was used to calculate the logit coefficents, indicating if the *b* coefficient for each predictor significantly differed from zero. Beta values are presented in Table 41. A review of these revealed that one of the predictors displayed significant beta values. Adaptive coping strategy type was negatively associated with grade promotion, $B = -.60$, $p = .0241$. Calculated odds ratios for each predictor are also presented in Table 41 and indicate the predicted odds of being promoted. Wald Confidence Intervals were also calculated for predictor variables with a level of 95% confidence to indicate that upon repeated trials, 95% of the Confidence Intervals would include the true population odds ratio. Finally, the deviance value for the Intercept and Covariates of this model (-2LogL = 16.88) is provided in the notes of Table 41 to assist in comparing the models.

Logistic Regression, Model Two. This model examined the set of two coping strategy types as predictors for the categorical outcome variable, grade promotion.

Multicollinearity. The predictor variables each had VIF values less than 10. None of the predictor variables had tolerance less than .2.

Convergence. Convergence criterion was satisfied.

Logistic Regression Results. The likelihood ratio test indicated that the model was statistically significant, $\chi 2(2) = 32.68$, $p < .0001$. Maximum Likelihood Estimation was used to calculate the logit coefficients, indicating if the b coefficient for each predictor significantly differed from zero. Beta values are presented in Table 41. A review of these revealed that both of the predictors displayed significant beta values. Both were negatively associated with promotion: Adaptive coping style ($B = -.22$, $p = .0027$) and Non-adaptive coping style ($B = -.12$, $p = .0282$). Calculated odds ratios for each predictor are also presented in Table 41 and indicate the predicted odds of being promoted. Wald Confidence Intervals were also calculated for predictor variables with a level of 95% confidence to indicate that upon repeated trials, 95% of the Confidence Intervals would include the true population odds ratio. Finally, the deviance value for the Intercept and Covariates of this model (-2LogL = 44.56) is provided in the notes of Table 41 to assist in comparing the models.

Logistic Regression, Model Three. The third model examined the set of four adaptive styles as predictors for the categorical outcome variable, grade promotion. Because adaptive style is categorical, the four styles were dummy coded, with Repressive adaptive style identified as the reference group.

Multicollinearity. The predictor variables each had VIF values less than 10 and none of the predictor variables had tolerance less than .2.

Table 41

Adaptive Styles and Coping Strategy Types Predicting Grade Promotion

	B(SE)	Wald χ^2		Odds Ratio(95%CI)
Model 1				
Intercept	67.12(158.9)	.18		
Adaptive Coping	-.60(.27)	5.08	*	.55(.33, .93)
Non-adaptive Coping	-.23(.21)	1.18		.79(.52, 1.20)
Low Anxious	-2.23(210.1)	.00		.11(0, >1000)
High Anxious	-15.34(157.7)	.01		0(0, >1000)
Defensive High Anxious	-20.49(157.7)	.02		0(0, >1000)
Model 2				
Intercept	21.97(5.94)	13.70	**	
Adaptive Coping	-.22(.08)	8.97	**	.80(.69, .93)
Non-adaptive Coping	-.12(.05)	4.81	*	.89(.80, .99)
Model 3				
Intercept	13.92(171.3)	.01		
Low Anxious	-101E-12(225.3)	0		1.00(0, >1000)
High Anxious	-11.98(171.3)	0		0(0, >1000)
Defensive High Anxious	-11.09(171.3)	0		0(0, >1000)

Note: -2LogL for Intercept Only = 77.24
-2LogL for Intercept and Covariates Model 1 = 16.88
-2LogL for Intercept and Covariates Model 2 = 44.56
-2LogL for Intercept and Covariates Model 3 = 61.98

Convergence. A quasi-complete separation of data points was detected in this model, indicating that an independent variable in the model has a strong, but non-infinite effect on the dependent variable. All youth were promoted that were categorized as having Repressive or Low Anxious adaptive styles, thus triggering the quasi-complete separation. The number of youth promoted for each adaptive style can be seen above in Table 39. The decision was made to leave the variables in the model, as the coefficients, standard errors, and test statistic for the remaining variable remain valid as estimations of maximum likelihood.

Logistic Regression Results. The likelihood ratio test indicated that the model was statistically significant, $\chi2(3) = 15.26$, $p = .0016$. Maximum Likelihood Estimation was used to

calculate the logit coefficients, indicating if the *b* coefficient for each predictor significantly differed from zero. Beta values are presented in Table 41. A review of these revealed that none of the predictors displayed a significant beta value. Calculated odds ratios for each predictor are also presented in Table 41 and indicate the predicted odds of being promoted. Wald Confidence Intervals were also calculated for predictor variables with a level of 95% confidence to indicate that upon repeated trials, 95% of the Confidence Intervals would include the true population odds ratio. Finally, the deviance value for the Intercept and Covariates of this model (-2LogL = 61.98) is provided in the notes of Table 41 to assist in comparing the models.

Summary of Research Question Ten

The results of the regression analyses examining adaptive styles, coping strategies and coping strategy types as predictors of academic outcomes are summarized in Table 42. In this table, it is indicated if a variable had a statistically significant positive (+) or negative (-) effect in Model 1, which controlled for other factors in addition to the set to which the variable belonged, and/or in Model 2 or 3, the simplified models that did not control for other factors. It is evident that there are statistically significant variables that remain consistent across multiple models. For example, the coping strategies Planning and Catastrophizing had consistent positive associations across models for School Scale Score and participation in Special Education, while Positive Refocusing and Self-Blame had consistent negative associations across these two outcome variables. Defensive High Anxious Adaptive style was negatively associated with School Scale score across all models. The only significant results found for grade promotion were negative association with adaptive coping strategy type across models, and a negative association with non-adaptive coping type in the simplified model involving only coping types.

Table 42

Summary of Regression Analyses: Adaptive Styles, Coping Strategies and Coping Strategy Types as Predictors of Educational Outcomes

	School Scale Score		No Special Education		Promotion	
Adaptive Styles & Coping Strategies	Model 1	Models 2 & 3	Model 1	Models 2 & 3	Model 1	Models 2 & 3
Acceptance	-	-		-		
Planning	+	+	+	+		
Positive Refocusing	-	-	-	-		
Positive Reappraisal						
Putting in Perspective				+		
Self-Blame	-	-	-	-		
Other Blame	-	-	+	+		
Rumination		-	-	-		
Catastrophizing	+	+	+	+		
Low Anxious						
High Anxious		-		-		
Def High Anxious	-	-				
Adaptive Styles & Coping Strategy Types						
Adaptive Coping		+			-	-
Non-Adaptive Coping	-	-				-
Low Anxious						
High Anxious	-	-	-	-		
Def High Anxious	-	-				

Summary of All Results

Descriptive results were presented that indicated differences in adaptive style among demographic variables in both youth and parent participants. These differences were present for gender, race, type of cancer and treatment status. When the relationship between parent and youth adaptive styles was examined, statistically significant results were found. For example, parents with a Repressive adaptive style were most likely to have children with the same adaptive style. The reverse was also true, with youth identified with Repressive adaptive style most likely to have parents with this style.

Group differences among adaptive styles were examined on outcomes relating to subjective well-being, psychosocial variables, and academic variables. Statistically significant results indicated that youth with a Repressive adaptive style scored higher on subjective well-being than youth in any other group. On the psychosocial measures, the most profound finding was related to Internalizing Behavior problems: Repressive and Low Anxious style groups had significantly lower mean scores than the High Anxious and Defensive High Anxious adaptive style groups. On the educational measures, significantly better outcomes on the School Scale score were also associated with the Repressive and Low Anxious adaptive styles than the High Anxious and Defensive High Anxious adaptive styles. A statistically significant association between adaptive group and special education participation existed for the Defensive High Anxious group (associated with not receiving services) and the High Anxious group (associated with receiving services). A statistically significant association was also found between adaptive style and grade promotion, with all youth in the Repressive and Low Anxious groups promoted since diagnosis, and the lowest percentage of youth promoted in the High Anxious category (87.5%). The relationship between adaptive styles and coping strategies was also examined. Results indicated that High Anxious and/or Defensive High Anxious adaptive styles are consistently higher across coping strategies and the non-adaptive coping strategy type than Low Anxious and/or Repressive, with few exceptions.

The results of the multiple regression analyses examining adaptive styles, coping strategies and coping strategy types as predictors of subjective well-being, psychosocial outcomes and academic variables were also presented and will be further discussed in the following chapter. For example, significant results related to subjective well-being included positive effects of Positive Refocusing and Adaptive Coping Type, negative effects of Self-

Blame, Catastrophizing, and Non-Adaptive Coping type, and negative effect Low and High Anxious adaptive styles compared to the Repressive adaptive style. Regarding psychosocial well-being and risk, High Anxious and Defensive High Anxious adaptive styles had consistent positive associations with internalizing behaviors problems, as compared to Repressive adaptive style. High Anxious adaptive style and Adaptive Coping type had positive associations with social competence as well. Adaptive coping was negatively associated with internalizing behavior problems.

The results of the regression analyses examining adaptive styles, coping strategies and coping strategy types as predictors of academic outcomes resulted in positive associations between the coping strategies of Planning and Catastrophizing for School Scale Score and for participation in Special Education, while Positive Refocusing and Self-Blame had consistent negative associations across these two outcome variables. Defensive High Anxious Adaptive style was negatively associated with School Scale score across all models. A negative association with grade promotion was found with adaptive coping strategy type across models, and a negative association with non-adaptive coping type in the simplified model involving only coping types.

CHAPTER FIVE:

DISCUSSION

The purpose of this study was to examine the adjustment of youth who have been diagnosed with cancer. More specifically, the current study examined adaptive styles and coping strategies in youth diagnosed with cancer to determine any relationships between these variables and subjective well-being, psychosocial and educational adjustment, and parent adaptive style.

This chapter begins with a presentation of the findings associated for each of ten research questions. The limitations of the study, recommendations for future research, and practical implications are then discussed. The chapter concludes with a summary of the current study findings.

Discussion of Results

Research Question 1: What categories of adaptive style are represented in a sample of youth who have been diagnosed with cancer, as measured by the Children's Social Desirability (CSD) scale and the State-Trait Anxiety Index for Children (STAIC)?

For research question one, it was hypothesized that a repressive adaptive style would be represented among a sample of youth diagnosed with cancer within the range represented in past research of adaptive style among youth diagnosed with cancer (23 to 36%; Hancock and Phipps, 2006; Phipps & Srivistava, 1997). This hypothesis was based on the results of prior research on adaptive style in youth diagnosed with cancer, indicating that a repressive adaptive style occurs more frequently in youth diagnosed with cancer than healthy peers (Hancock & Phipps, 2006; Phipps, Larson, Long & Rai, 2006; Phipps & Srivastava, 1997; Phipps, Steele, Hall, & Leigh,

2001). The findings in the current study, however, did not confirm this hypothesis. Although the percentage of participants identified as Repressors and Low Anxious were close to the low end of the range of percentages for these categories in previous studies, a higher percentage of High Anxious participants participated in the current study. Table 43 presents the percentages for each category of adaptive style, compared to the range of percentages found in the previous research on adaptive style conducted by Phipps and colleagues. In these prior studies, Repressive or Low Anxious adaptive styles were always most commonly represented among youth diagnosed with cancer. The percentage of youth categorized as Defensive High anxious in the current study is consistent with each of the prior studies on adaptive style in youth diagnosed with cancer.

Table 43

Distribution of Youth: Percentage of Each Adaptive Style Represented in the Current and Previous Studies

Adaptive Style	Current Study	Range in Past Studies
Repressors	21	23 - 36
Low Anxious	29	33 - 51
High Anxious	40	12 - 27
Defensive High Anxious	10	6 - 14

The dissimilar outcomes may be a result of differences in the recruitment process, administration of assessments, or demographic differences in the youth participants in the current study compared to those in prior studies. For example, in prior studies participants were all recruited from a single major pediatric oncology center. They were directly approached by the researchers to request participation. Over 90% of youth approached agreed to participate, and the assessment batteries were administered individually by the researchers. Demographics differed between the current and previous studies regarding percentages of youth represented by

different races (higher percentages of black youth, lower percentages of white and "other" youth in previous studies), genders (higher levels of males in previous studies) and age (higher percentages of younger and lower age-range youth and lower percentages of mid-range youth in prior studies). There is evidence that these variables are related to outcomes in adaptive style research that may partially explain the difference in the distribution of adaptive styles (Phipps, Steele & Hall, 2001; Steele, Elliott & Phipps, 2003).

Research Question 2: What categories of adaptive style are represented in a sample of parents of youth who have been diagnosed with cancer, as measured by the State-Trait Anxiety Inventory (STAI) and the Marlowe-Crowne Social Desirability Scale (MCSDS)?

It was hypothesized that the representation of repressive adaptive style among a sample of parents whose children have been diagnosed with cancer would be similar to the percentage of parents found in a previous study of parent adaptive style (28%; Phipps et al., 2006). The findings in the current study confirmed this hypothesis. Additionally, adaptive style outcomes for parents were similar to those of the youth participants. The High Anxious category was most commonly represented among the parent participants (46%). Table 44 presents the percentages for each category of adaptive style, compared to the percentages of youth in each category. Low Anxious (26%) and Repressive (24%) adaptive styles had comparable representation among parent participants, as they did among youth participants. Defensive High Anxious was also the least common adaptive style among parents (5%). Approximately half of the participants in the youth group, as well as the parent group, identified with a Repressive or Low Anxious adaptive style.

One previous study that examined adaptive styles in parents of youth diagnosed with cancer also reported the distribution across adaptive styles (Phipps, Larson, Long & Rai, 2006). The representation of adaptive style in that study is presented in Table 44 for comparison to the

Table 44

Distribution of Adaptive Style Categories in Current and Previous Parent Study

Adaptive Style	Current Study Parents	Current Study Youth	Previous Study Parents
Repressors	23.9	21.1	28.3
Low Anxious	25.6	28.9	38.3
High Anxious	45.6	40.0	25.8
Defensive High Anxious	5.0	10.0	7.5

current study. Although it was not the most commonly represented adaptive style in either study, Repressive adaptive style was similarly represented in both studies. The Defensive High Anxious adaptive style also was similarly represented, and the least prevalent, in both studies. The notable difference between the two studies is that the High Anxious adaptive style is the most represented category in the current study, while the Low Anxious adaptive style is the highest represented category in the previous study. The dissimilar outcomes between the two studies may again be a result of differences in the recruitment process, assessment administration procedures, or demographic differences in the samples used for the current study compared to those recruited in the previous study. These differences were described in the section above regarding the dissimilar adaptive style outcomes for youth in the current study compared to those in previous studies.

Research Question 3: Is there a relationship between youth adaptive styles and parent adaptive styles?

For this research question, it was hypothesized that parental adaptive style would be correlated with their children's styles, and that youth would be more likely to have similar adaptive styles to their parents. Findings obtained for this research question indicated that there is a statistically significant relationship between youth and parent adaptive styles, confirming the first part of the hypothesis. The hypothesis that youth would have similar adaptive styles to parents was confirmed, however, only for the Repressive adaptive style. This association was bidirectional: parents who had a Repressive adaptive style tended to have children with the same adaptive style, and children who were categorized as Repressors also had Repressive parents. It also is interesting to note that no parents in the Repressive category had a child in the Defensive High Anxious group, and no child in the Repressive category had a parent in the Defensive High Anxious group.

The High Anxious adaptive style was the most common adaptive style for both youth and parents. For both youth and parents, this adaptive style was most commonly associated with either a High or Low anxious style in the dyad partner. A Low Anxious adaptive style in a parent or child was most commonly associated with a High Anxious style in the dyad partner. Thus for the High and Low Anxious categories, the association seemed stronger for the construct of low defensiveness, than for anxiety or a combination of anxiety and defensiveness.

A Low Anxious adaptive style in the parent was most commonly associated with a High anxious adaptive style in their child. Interestingly, the opposite was again true with youth categorized as low anxious most likely having a parent categorized as High Anxious. These participant dyads differed on anxiety scales, but shared low defensiveness scale scores. In this

study, no parent with a Low Anxious adaptive style had a child who was categorized as Defensive High Anxious.

The significant commonality between Repressive parents and youth partially confirmed the hypothesis that the dyads would tend to have the same adaptive style, but the same results did not occur with the remaining adaptive styles. As no research has previously been done to examine the relationship between parent and child adaptive styles in the pediatric oncology research, the hypothesis was based on research that has positive correlations between parent and youth on psychosocial outcomes, such as distress, anxiety, and PTSS (Alderfer & Kazak, 2006; Steele, 2004; Robinson et al., 2007). Additionally the hypothesis was based on the theoretical models that provided the framework for the current study, which indicate that systems fluidly interact with each other and bidirectionally influence each other. While the relationship between dyad participants with Repressive adaptive styles was consistent with prior research and the theoretical model, the remaining associations are not as easily explained. For those with a High Anxious, Low Anxious, or Defensive High Anxious adaptive style, it appears that the association with the dyad partner was more positively associated with the low defensiveness scores than the anxiety score or adaptive style (a combination of anxiety and defensiveness).

Another way to examine this outcome would be to examine associations between Repressors and Non-Repressors, similar to other studies of adaptive style in the pediatric oncology research that have focused on Repressors compared to Non-Repressors (Canning et al., 1992; Erickson et al., 2007). If the comparisons are made in this way for the current study, based on percentages, it does appear that Repressive parents are most likely to have Repressive children, while Non-Repressive parents are most likely to have Non-Repressive children. Examining this association bi-directionally, it is also apparent that Repressive children are more

likely to have Repressive parents, and Non-Repressive children are more likely to have Non-Repressive parents.

Research Question 4: Is there a difference between youth with different adaptive styles when they are compared on levels of subjective well-being, as measured by the Student Life Satisfaction Scale (SLSS) and the Positive and Negative Affect Scale – Children (PANAS-C)?

It was hypothesized that a Repressive adaptive style, as compared to other adaptive styles, in youth diagnosed with cancer would be more positively correlated with high levels subjective well-being. Consistent with the hypothesis, the findings revealed that there was a significant difference between youth with different adaptive styles when compared on levels of subjective well-being and that a Repressive adaptive style was most positively correlated with high levels of subjective well-being. The difference between Repressive adaptive style and each of the other adaptive styles was statistically significant. Although the relationship between subjective well-being and adaptive style in youth diagnosed with cancer has not previously been examined, this finding is consistent with past research that has found positive psychosocial outcomes (i.e., better quality of life, fewer symptoms of depression, somatization, anger expression and PTSS) related to Repressive adaptive style in youth diagnosed with cancer (Phipps & Steele, 2002; Phipps et al., 2006; Phipps et al, 2005; Russell et al., 2006). Further, as subjective well-being is defined as an indicator of quality of life that encompasses the presence of positive affect, life satisfaction and domain satisfaction (i.e. family, health), this finding supports previous researchers' findings that Repressors view themselves as well-adjusted, and are content (Jurbergs et al., 2008; Meyers et al., 2008; Phipps et al., 2006; Phipps et al., 2007). These findings are particularly significant in their relevance to a positive psychology approach

which emphasizes the importance of examining wellness in terms of positive outcomes (i.e., positive affect, contentment), rather than simply the absence of psychopathology or maladjustment.

Additionally, it was found that a High Anxious adaptive style was associated with lower levels of subjective well-being than each of the other adaptive styles. The difference between High anxious and each of the other adaptive styles was also statistically significant. This finding is also consistent with previous research that has found participants with a High Anxious adaptive style related most strongly to high levels of symptoms of PTSS and depression (Canning et al., 1992; Phipps, 2007; Phipps & Srivastava, 1997; Phipps et al., 2006; Phipps et al. 2009).

Research Question 5: Is there a difference between youth with different adaptive styles when they are compared on psychosocial adjustment/risk, as measured by the Child Behavior Checklist (CBCL)?

It was hypothesized that a Repressive adaptive style, as compared to other adaptive styles, in youth diagnosed with cancer would be more positively associated with psychosocial adjustment (social competence) and negatively associated with psychosocial risk (internalizing behavior and externalizing behavior).

Regarding internalizing problems, this hypothesis was confirmed. The Repressive adaptive style group mean on the CBCL internalizing behavior scale was lower than any of the other group means. The findings revealed significant differences between Repressive adaptive style and both of the High Anxious groups on this scale. These results are consistent with the findings of Erickson et al. (2008) who reported moderate to large effect sizes for youth categorized as Repressors, compared to youth categorized as non-repressors, on the internalizing

problem scale of the CBCL. Clinical relevance also was evident in the results, as the Defensive High Anxious and High Anxious mean scores fell within the Borderline range, the Low Anxious and Repressive mean scores fell within the average range. These findings lend support to the notion that a Repressive adaptive style in youth diagnosed with cancer may help to explain the positive psychosocial outcomes prevalent in this population. Further, as there is some skepticism regarding the accuracy of self-report among youth identified with a Repressive adaptive style, the results on the parent report measure lend credence to the suggestions in past adaptive style research that these youth are actually functioning well psychosocially, and not just "faking good" (Jurbergs et al., 2007; Phipps, 2007).

The hypothesis for research question five was not confirmed for the externalizing problem scale or the social competence scales. Although analyses indicated significant differences between groups for these variables, it was evident from the mean scores that the Repressive adaptive style group did not exhibit the lowest score for externalizing problems or highest score for social competence. Follow-up tests indicated that the only significant difference between adaptive style groups for externalizing problems existed between Defensive High Anxious and Low Anxious mean scores, with the Defensive High Anxious group having the lowest mean (i.e., fewer externalizing problems) and the Low Anxious group resulting in the highest mean. These results are not consistent with the previous study examining the relationship between adaptive style and externalizing problems on the CBCL (Erickson, 2008). The results reported in that study indicated there was not a statistical significant difference between means for repressors and non-repressors but that there was a moderate to large effect size for youth categorized as repressors compared to non-repressors on the externalizing problem scale.

Although the current study produced unexpected statistically significant results, it is important to note that none of the group means were clinically significant or borderline: each mean score fell within the average range (Achenbach & Maruish, 2004). Thus there does not appear to be a clinical difference among the adaptive style groups, as each group means and the overall sample mean (M = 44.7) suggested average functioning in regard to externalizing behaviors.

Results related to the Social Competence scale also differed from the hypothesis, as the Repressive adaptive style was not associated with the highest mean score on this measure. Follow up tests in this analysis indicated that Defensive High Anxious and High Anxious adaptive styles were the only two group means that differed significantly from each other. The Defensive High Anxious group mean (M = 34.5), was the only mean not to fall within the average range (>35). While no previous studies examined the relationship between the social competence scale and adaptive styles, the mean for all participants in the current study (M=40.7) fell within the average range, which is consistent with the research of Kazak et al. (1999) who reported four mean scores (father report, mother report, and two chronological data points) for pediatric cancer survivors. These scores ranged from 42.9 to 46.8, also within the average range of scores for this scale. These results indicate that youth diagnosed with cancer tend to function within an average range of social competence regarding their participation in activities, involvement with friends and their ability to engage in activities both individually and with others. With all scores in the non-clinical range, it does not seem that adaptive style has clinical significance for this measure.

Research Question 6: Is there a difference between youth with different adaptive styles when they are compared on education outcome variables, as measured by the School

Scale of the CBCL and parent report of enrollment in special education services and grade promotion?

For research question six, it was hypothesized that a Repressive adaptive style, as compared to other adaptive styles, in youth diagnosed with cancer would be more positively correlated with desirable educational outcomes (i.e., average school scale scores, maintaining status in general education setting, and grade promotion). Results on the CBCL School Scale indicated that individuals with a Repressive or Low Anxious adaptive style had significantly better outcomes on this measure than those with a High Anxious or Defensive High Anxious adaptive style. Although these results did not confirm the hypothesis that Repressive adaptive style would be more positively correlated with the School Scale scores, results were consistent with previous adaptive style research findings that Repressive and Low Anxious groups do not differ significantly from each other on certain psychosocial outcomes, but they differ significantly from the High Anxious and Defensive High Anxious group (Jurbergs et al., 2008). When Repressive and Low Anxious adaptive style groups do not differ from each other, but are each associated with significantly more positive outcomes than the High and Defensive High Anxious groups, these outcomes appear to be primarily determined by the trait anxiety factor rather than adaptive style (the interaction of trait anxiety and defensiveness). It is also important to note that the overall mean (48.5) for participants, as well as the group mean for each adaptive style (42.2 – 52.6) were all in the average range for this scale (> 35).

Regarding grade promotion as an indicator of positive educational outcome, relatively few participants had been retained since the time of diagnosis: Ten of the 180 participants had been retained. Results indicated that there was a statistically significant relationship between adaptive style and whether or not a student had been promoted since diagnosis. This association

was mainly driven by the High Anxious adaptive style being positively associated with retention, and the Low Anxious adaptive style being positively associated with promotion. It is noteworthy that all participants classified as Repressors and Low Anxious, and almost all participants classified as Defensive High Anxious (nine of ten), had been promoted since diagnosis. This is possibly not only a reflection of the resilience and perseverance of these youth, but a reflection of the successful advocacy of the systems around the children (i.e, family, hospital staff, schools and community agencies) assuring that these youth receive the accommodations and interventions necessary for their continued academic progress and success.

A significant association between special education services and adaptive style appeared to be mainly driven by the Defensive High Anxious (negatively associated with receiving services) and the High Anxious (positively associated with receiving services) adaptive styles. Of note, the High Anxious adaptive style was the only adaptive style to have more students receiving special education services than not receiving special education services. It also is important to note that the hypothesis pertaining to this research question was based on the notion that student participation in special education was defined as being enrolled in, and receiving services through, Exceptional Student Education. However, anecdotal information provided by parents indicated that special education participation was more broadly interpreted: several parents indicated that some of the services their children received were more indicative of a proactive and preventative approach to promote continued academic success. Therefore, these results must be interpreted with caution and this relationship should be further explored in future research.

Research Question 7: Is there a relationship between adaptive style and coping strategies, as measured by the Cognitive Emotion Regulation Questionnaire – kids (CERQ-k)?

It was hypothesized that adaptive style categories that have been associated with better adjustment outcomes would have stronger relationships with coping strategies that are considered "adaptive," while adaptive style categories which have been associated with poorer adjustment outcomes would have stronger relationships with coping strategies that are considered "non-adaptive." The results did not confirm this hypothesis consistently when analyses were conducted for each of the nine coping strategies. Defensive High Anxious and/or High Anxious adaptive styles had significantly higher means on most of the adaptive coping strategy scores than Low Anxious or Repressive adaptive styles. Regarding the four non-adaptive coping strategies, the results were more aligned with the hypothesis: each of the significant relationships indicated a stronger positive relationship between the non-adaptive strategy and High Anxious and/or Defensive High Anxious adaptive styles than between the non-adaptive strategy and Repressive or Low Anxious adaptive styles. It appears that youth categorized as Defensive High Anxious or High Anxious employ more coping strategies in general than their Repressive and Low Anxious peers.

The authors of the coping strategies measure used in this study (CERQ) recommend that studies of the relationship between coping strategies and psychopathology should not focus on the individual coping strategies, but rather on the combination of strategies (i.e., adaptive and non-adaptive strategy types). Thus, the five adaptive coping strategies were collapsed to provide mean scores for adaptive coping strategy type and the four non-adaptive strategies were collapsed to provide mean scores for non-adaptive coping strategy type. Analyses were then

conducted to examine the relationship between adaptive styles and these two coping strategy types. Only the non-adaptive coping strategy type produced significant results. A statistical difference was demonstrated for the Low Anxious adaptive style (lower non-adaptive strategy score) and each of the other adaptive styles. Significance was also demonstrated for the Defensive High Anxious group, which produced a higher score than each of the other adaptive styles.

The lack of statistical significance for the adaptive coping strategies may be due in part to fact that individuals who are experiencing more distress (i.e., participants categorized as High Anxious and Defensive High Anxious) are more likely to use more coping strategies in general, both adaptive and non-adaptive (Garnefski et al., 2001). While the Low Anxious adaptive style was more strongly associated with less frequent use of non-adaptive strategies than the Repressive adaptive style, results indicated overall more positive strategy use related to Repressive and Low Anxious adaptive styles relative to High Anxious and Defensive High Anxious styles. As mentioned in the discussion of research question six, such results indicate a stronger association with trait anxiety than with an interaction of the two constructs related to adaptive style (trait anxiety and defensiveness).

Research Question 8: Do adaptive styles, coping strategies, or a combination of both, best predict subjective well-being, as measured by the Student Life Satisfaction Scale (SLSS) and the Positive and Negative Affect Scale – Children (PANAS-C)?

For this research question, it was hypothesized that adaptive style categories would better predict subjective well-being than the whole set of coping strategies, but that there would be subsets of coping strategies that predict subjective well-being at least as well as adaptive style categories predict this outcome variable. Results did not support the hypothesis that adaptive

style would predict subjective well-being better than the coping strategies. The strongest model was the combination of adaptive styles and coping strategies. This was evident when the analyses included all nine coping strategies, as well as when the strategies were combined to create the two composite scores, adaptive and non-adaptive coping strategy types.

A subset of several variables significantly predicted subjective well-being across multiple models. Positive Refocusing and Adaptive coping style significantly predicted subjective well-being across all models in which they were included. Specifically, findings indicated that the increase in scores on the Positive Refocusing or Adaptive coping type scores was associated with an increase in subjective well-being when other variables were held constant. Catastrophizing and Self-Blame coping strategies also significantly predicted subjective well-being across models. These findings indicated that a decrease in scores on these predictor variables was associated with a decrease in subjective well-being, when other variables were held constant. The Low Anxious and High Anxious adaptive styles had a significant negative association with subjective well-being compared to the Repressive adaptive style. This finding parallels the finding in Research Question Four that indicated Repressive adaptive style was most positively associated with subjective well-being.

These findings provide additional support to the research on adaptive style which indicates Repressive adaptive style is strongly associated with multiple indicators of positive outcomes for children diagnosed with cancer. Further, these findings suggest that a model that includes adaptive style and a combination of coping strategies better predicts subjective well-being than adaptive style alone, and may help better explain the positive outcomes commonly seen in children diagnosed in cancer.

Research Question 9: Do adaptive styles, coping strategies, or a combination of both, best predict psychosocial adjustment/risk, as measured by the Child Behavior Checklist (CBCL)?

For research question nine, it was hypothesized that adaptive style categories would better predict psychosocial adjustment and risk than the whole set of coping strategies, but that there would be subsets of coping strategies that predict psychosocial adjustment and risk at least as well as adaptive style categories predict these outcomes. Results did not support the hypothesis that adaptive style would predict psychosocial adjustment and risk better than the set of coping strategies when all nine coping strategies were included in the model. The strongest model across all analyses for these psychosocial outcome variables was the combination of both adaptive style and coping strategies. This was evident when the analyses included all nine coping strategies, as well as when the strategies were combined to create two composite scores, adaptive and non-adaptive coping strategy types.

A subset of several variables significantly predicted psychosocial outcomes across multiple models. For externalizing behavior, the only predictor that was consistently statistically significant across models was Other Blame, and it had a positive association with Externalizing behavior. The lack of statistical significance for adaptive style in these analyses parallels the results in Research Question Five that failed to indicate a significant difference between Repressive adaptive style and the other adaptive style groups on externalizing behavior. Overall, youth had positive outcomes on the Externalizing Behavior measure, which appears to be substantially independent of coping strategy or adaptive style.

Another key finding in these analyses was that Adaptive coping type again predicted positive outcomes across multiple models. Specifically, findings indicated that the increase in

scores on Adaptive coping type was associated with lower scores for Internalizing Behavior problems and higher scores on Social Competence. The Planning coping strategy significantly predicted Social Competence across models, indicating an increase in Planning scores was associated with an increase in Social Competence scores. Non-Adaptive coping type also predicted Social Competence, indicating an increase in Non-Adaptive scores was associated with a decrease in Social Competence. High Anxious and Defensive High Anxious adaptive styles had significant positive associations with Internalizing Behavior problems, when compared to Repressive adaptive style across all models. These results support the hypothesis that a subset of coping strategy and adaptive style variables would predict psychosocial outcomes. Further, these statistically significant outcomes were all in expected directions, with Repressive adaptive style and adaptive coping strategies being associated with positive outcomes.

Some unexpected results also were found for the Social Competence outcome variable. For example, Catastrophizing significantly predicted Social Competence, with an increase in Catastrophizing scores associated with an increase in Social Competence scores. This supports the CERQ authors' recommendation to examine relationships between coping strategy types and other variables, rather than single coping strategies and other variables. Further, the High Anxious adaptive style had a significant positive association with Social Competence, when compared to Repressive adaptive style. Examining these results in conjunction with the results from Research Question Five, it is evident that youth diagnosed with cancer predominantly score in the average range on the Social Competence scale, with the exception being those with Defensive High Anxious adaptive style whose group mean was slightly below average in the borderline range. It is hypothesized that the increased use of adaptive coping strategies and decreased use of non-adaptive strategies overall may be protective factors promoting Social

Competence, despite the associations with the single non-adaptive strategy (catastrophizing) and High Anxious adaptive style.

Research Question 10: Do adaptive styles, coping strategies, or a combination of both, best predict education outcome variables, as measured by the School Scale of the CBCL and parent report of school attendance, enrollment in special education services, and grade promotion?

For research question ten, it was hypothesized that adaptive style categories would better predict education outcome variables than the whole set of coping strategies, but that there would be subsets of coping strategies that predict education outcomes at least as well as adaptive style categories predict these outcomes. Results did not support the hypothesis that adaptive style would predict educational outcome variables better than the set of coping strategies when all nine coping strategies were included in the model. The strongest model across all analyses for these variables was the combination of both adaptive style and coping strategies. This was evident when the analyses included all nine coping strategies, as well as when the strategies were combined to create two composite scores, adaptive and non-adaptive coping strategy types.

A subset of several variables significantly predicted academic outcomes across multiple models. For promotion, the only predictors that were statistically significant were coping strategy type. Adaptive coping type was statistically significant across models, and was negatively associated with promotion. In the simplified model, which only included coping strategy types and did not control for other adaptive style variables, non-adaptive coping strategies were also negatively associated with promotion. Previous research on coping strategies also has found an increase in both adaptive and non-adaptive strategies related to certain negative outcome variables (Garnefski & Kraiij, 2002; Garnefski, Kraiij & Spinhoven,

2001). This likely indicates that individuals experiencing distress (i.e., anxiety and depression reported in previous studies, academic struggles leading to retention in the current study) may employ more coping strategies in general – both adaptive and non-adaptive. Thus an increased use of adaptive and non-adaptive coping strategies is associated with retention in the current study, while a decreased use of both coping strategy types is associated with increased likelihood of promotion.

Regarding the School Scale score, Planning and Catastrophizing were the only positively associated variables. Acceptance, Positive Refocusing, Self-Blame, and Other Blame were negatively associated across models, again indicating that sometimes lower use of coping strategies is associated with more positive outcomes. Non-adaptive coping type was also negatively associated with School Scale scores across models, while adaptive coping type was positively associated in the model only involving coping type. With this outcome variable it appears that collapsing the nine strategies into two types helps differentiate the effect of positive and negative copying types, so that even though an increased use of multiple strategies may be present when a child is experiencing difficulties, the non-adaptive strategies may have more negative impact. Defensive High Anxious was negatively associated with School Scale scores, compared to Repressive adaptive style across all models, and High Anxious was negatively associated compared to Repressive across three of the four models relating to School Scare score. These findings were consistent with the findings in Research Question Seven indicating that Repressive and Low Anxious adaptive styles were more positively associated with School Scale scores than these two adaptive styles. This also is consistent with previous research that associates the Higher Anxious adaptive styles with less favorable outcomes (Jurbergs et al., 2008).

An interesting subset of adaptive and non-adaptive coping strategies was also consistently statistically significant across models for participation in special education services. These included the positive associations of Planning, Other Blame, and Catastrophizing, and the negative associations Positive Refocusing, Self-Blame, and Rumination with not receiving special education services. Neither adaptive coping type nor non-adaptive coping type was statistically significant for any model. High Anxious adaptive style was negatively associated with not receiving special education services, compared to Repressive adaptive style. This association was consistent with the findings for Research Question Six, which indicated that High Anxious adaptive style had a significant positive association with receiving special education services. Participation in services may signify that a student was struggling academically or it may indicate a proactive and preventative approach to promote continued academic success. The reader is again cautioned not to interpret an association with participation in special education services as a definitive positive or negative outcome.

Limitations

Potential threats to internal and external validity may limit the interpretation of results of this study. Internal validity can be defined as the ability to infer that a causal relationship exists between two variables, in that observed differences among the dependent variables are related only to the independent variable and not to confounding extraneous variables (Johnson & Christensen, 2004). One threat to internal validity in this study may have been instrumentation. For example, psychosocial adjustment and participation in special education were assessed using parent report. Thus, assessment depended on parents' accuracy, observation, and interpretation of terminology, and may have been subject to reporter bias. Differential selection also may have been a threat to internal validity, as participants were self-selected based on child and parent

interest. There may have been more participation from less distressed individuals, as highly distressed individuals are less likely to participate in survey research (Jurbergs et al., 2007).

External validity is defined as the extent to which study findings can be generalized to the general population, settings, times, outcomes, and treatment variations (Johnson & Christensen, 2004). Rather than being randomly selected from the population, participants were recruited from non-profit agencies where children and families chose to receive services, and participants were self-selected. Thus, population validity may have been compromised. Ecological validity may also have been threatened, as participants from a limited number of organizations throughout the United States were included in this study. Temporal validity may also be compromised, as data were only collected during one time period.

Recommendations for Future Research

Additional research is needed to help differentiate between the many youth diagnosed with cancer who have predominantly positive psychosocial outcomes and the relatively few who do not. Although there is substantial research indicating that adaptive style offers some explanation for the adjustment of these youth, research targeting specific behaviors and strategies that can be practiced and taught help to inform direct intervention for the subset of youth who are not doing as well academically or psychosocially.

Experimental research involving a control group and the manipulation of independent variables (i.e., coping strategies) would provide richer information about the relationships between variables included in this study. For example, such research could more confidently indicate the direction of causality between coping strategy use and school variables, providing more evidence for the utility of teaching such adaptive strategy use and/or tapering of non-adaptive strategy use.

As this is the first study to examine academic outcome variables associated with adaptive styles and coping strategies, more research is recommended in this area. In order to increase accuracy and decrease issues related to interpretation, variables such as retention history, ESE services, grades and attendance could be more accurately reported by school record. Further, these variables should also be addressed considering data points pre-diagnosis, at intervals during treatment and at intervals after treatment completion.

Longitudinal research examining the relationship between adaptive styles, coping strategies and academic outcomes would also provide more meaningful results, given the potential for long-term effects of pediatric cancer and its treatment. Additionally, future research should address variables that may have impacted the current research outcomes, but were not included in the analyses (i.e., types of cancer, length of time since diagnosis, length of time in treatment, and type of treatment).

The relationship between youth and parent variables in this study was restricted to adaptive styles. It would also be informative to examine the relationship between parent and youth cognitive coping strategies to determine if parents model adaptive and/or non-adaptive strategies. Outcomes from such research would help determine the utility in teaching parents to increase adaptive and decrease use of non-adaptive strategies.

As in previous studies, adaptive style in the current study was found to be related to multiple outcome variables, providing continued evidence that adaptive style may help to explain the prevalence of positive psychosocial outcomes for children diagnosed with cancer. Phipps (2007) proposed that constructs in the positive psychology domain (i.e., hope, benefit finding, spiritual coping) also be studied for overlap with adaptive style. The findings in the current study also point to the importance of future research to determine additional overlapping

variables. Specifically, examining variables that can be used to guide intervention would be particularly useful. For example, in addition to further investigation of the cognitive coping strategies included in the current study, future research should include the examination of behavioral coping strategies (i.e., distraction, progressive muscle relaxation, and seeking social support).

Expanding pediatric oncology research within a social ecology model is also warranted. The systems that were addressed in the current research were limited to the individual (i.e., the child diagnosed with cancer), mesosystems (i.e., parents, school, illness) and exosystem (i.e. health services). It is noted that a parent participant in the current study inquired about the absence of questions related to spirituality, reporting that they felt this was a very important component in their family's coping with their child's cancer diagnosis and treatment. Certainly, this could be an interesting macrosystem variable to explore as it may pertain to adaptive style, coping strategies, and psychosocial outcomes for youth diagnosed with cancer. Future studies could incorporate additional system variables and open-ended items for participants to include any additional components they found important to successful coping.

Practical Implications

The results of this study were largely consistent with previous research findings that, overall, youth who have been diagnosed with cancer adapt very well psychosocially. However, a subset of individuals exists that may benefit from accommodations or interventions to help close the adjustment gap between themselves and their more psychosocially and academically adjusted peers.

Previous researchers have found that children with cancer tend to adopt a Repressive adaptive style more frequently than healthy peers (Canning, Canning, & Boyce, 1992; Jurbergs,

Russel, et al., 2008; Phipps & Srivastava, 1997). Because this adaptive style in children diagnosed with cancer was also found to be associated with positive psychosocial outcomes, it was proposed that a repressive adaptive style in this population may be a pathway to resilience (Phipps et al. 2001, 2002, 2006, & 2007). The current study provided additional evidence that Repressive adaptive style may promote resilience. For example, in the current study, Repressive adaptive style was related to higher subjective well-being and School Scale scores. This adaptive style was also related to lower scores relating to internalizing problems. In contrast, High Anxious adaptive style was related to lower Subjective Well-Being scores and a higher likelihood of grade retention. These results, in conjunction with related results in previous research, indicate that assessment of adaptive style would be useful to pediatric oncology professionals in identifying youth who may benefit from additional psychosocial support and intervention.

As the first study to examine a potential relationship between adaptive styles in youth and their parents, its' results provide preliminary evidence that there is a significant bi-directional relationship between Repressive adaptive style in youth and their parents. Due to the positive outcomes common to youth and parents identified with this adaptive style, it will be important for future research and practice to examine how this style, and specific behaviors and strategies related to this style, could also be promoted among parents, to further increase the related positive outcomes in both youth and parents.

The current study was also the first to explore associations between adaptive style and coping strategies, as such strategies could provide direction for intervention if they are associated with adaptive styles that seem to promote positive outcomes. In fact, the current study did find a positive relationship between the Repressive and Low Anxious adaptive styles and the use of

adaptive coping strategies, and a relationship between Low Anxious adaptive style and less use of non-adaptive coping strategies. The significant outcomes of this exploratory research indicate that there are strategies associated with the adaptive styles that can be targeted for intervention.

Examination of outcome variables related to cognitive coping strategies provides additional evidence that these strategies can guide intervention to further close the gap between the subset of youth diagnosed with cancer who are not adapting as well the majority of their peers who are thriving psychosocially. Although specific individual adaptive coping strategies were positively correlated with some beneficial outcomes (i.e., Positive Refocusing with subjective well-being, Planning with Social Competence), and individual non-adaptive coping strategies were associated with certain negative outcomes (i.e., Other –Blame with externalizing behavior problems), an interplay of strategies seemed to predict outcomes better than individual strategies. Thus, the significant outcomes of this exploratory research indicated the need for practitioners to focus on helping youth decrease the use of these non-adaptive strategies while continuing or increasing the use of adaptive strategies.

In addition to providing direction for intervention, the current study results pertaining to coping strategy use also provide direction for assessment. While the assessment of adaptive style may be used to identify individuals who may require additional psychosocial support, the assessment of coping strategy use can be used as a baseline measure to tailor intervention. Additionally, coping strategy assessment can be used as an on-going progress monitoring tool to measure treatment efficacy and outcomes.

Conclusion

The current study examined adaptive styles and coping strategies in youth diagnosed with cancer to determine any relationships between these variables and subjective well-being, psychosocial and educational adjustment, and parent adaptive style.

The results of this study add to the current literature base on pediatric cancer patients' adaptive style. A sample of youth, ages 9 to 17 years, and their parents were assessed to determine the distribution of adaptive style. While the distribution of adaptive styles was somewhat similar to past research, a higher concentration of High Anxious youth and parents were represented in the current study.

For the first time, the relationship between parents' and children's adaptive style was explored. As hypothesized a bi-directional association of Repressive adaptive style was found. Additional significant associations were also found that were not expected and could use further exploration. For example, Low Anxious parents most commonly had children who were High Anxious, and Low Anxious youth most commonly had parents who were High Anxious. In general, however, Repressive participants (both youth and parents) were associated with a Repressive dyad partner (youth participant's parent or parent participant's child), and Non-Repressive participants were associated with Non-Repressive dyad partners.

The relationship between children's adaptive style and their subjective well-being, psychosocial variables, and education-related variables were explored. Results pertaining to subjective well-being, internalizing behavior problems, social competence, school scale scores, and grade promotion lend support to previous research in adaptive style that has indicated more positive outcomes for Repressive adaptive style than other adaptive styles or for Repressive and Low Anxious adaptive styles than High Anxious and Defensive High Anxious adaptive styles.

Results pertaining to externalizing problems were not as expected, but had little clinical relevance as mean scores across groups were all within the average range.

Coping strategies in youth diagnosed with cancer were examined for the first time as they related to adaptive style, subjective well-being, psychosocial risk and adjustment, and education-related variables. Overall, findings indicated that there tends to be an increased use of both adaptive and non-adaptive coping strategies for High Anxious and Defensive High Anxious youth, and this trend also is associated with more negative outcome variables. With few exceptions, adaptive coping strategies and type are more frequently related to positive adaptive styles and outcomes than non-adaptive. Non-adaptive strategies and type tend to be related to the High Anxious adaptive styles and negative outcomes. These results provide direction for intervention for youth diagnosed with cancer that may be at increased risk for negative psychosocial and education outcomes. Assessment of coping strategy use will guide therapeutic interventions to challenge non-adaptive strategies and to promote the use of adaptive coping strategies. These interventions may be one pathway to supporting more positive adaptive styles in youth diagnosed with cancer. Promoting more positive adaptive styles in this population may help close the gap between the subset of youth who experience negative psychosocial and education outcomes and their peers who experience such positive adjustment and outcomes.

In summary, this study attempted to replicate and add to the literature base of research associated with adaptive styles. It was the first to explore relationships between youth adaptive style and parent adaptive style, several outcome variables, and coping strategies. Overall, findings support the positive psychology research pertaining to youth diagnosed with cancer which indicates prevalent positive adjustment and outcomes. Further, support is given to existing research that suggests adaptive styles help explain this prevalent positive adjustment,

and that Repressive adaptive style may contribute to resilience. Findings regarding coping strategies used in this sample of participants provided evidence that additional, more malleable variables also contribute to resilience, providing direction for future research and intervention. Increased knowledge in these areas will inform interventions to promote adjustment and resilience in youth and families affected by pediatric cancer.

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APPENDICES

Appendix A: Participating Agency Information

Agency	Location	%*
Agency 1	Florida	3
Agency 2	Florida	60
Agency 3	Colorado	3
Agency 4	Indiana	10
Agency 5	Florida	3
Agency 6	Florida	3
Agency 7	Oregon	3
Agency 8	Florida	3
Agency 9	New York	3
Agency 10	Florida	3
Agency 11	Florida	3
Agency 12	Florida	3

*Approximate percentage of participants recruited from this location.

Appendix B: Recruitment Flyer

Adaptive Styles and Coping Strategies in Youth Diagnosed with Cancer: Relationship to Well-Being, Psychosocial Adjustment, Education, and Parents' Adaptive Styles

Participants Wanted for a Research Study

WHO: Youth between the ages of 9 and 17 who are currently receiving medical treatment for cancer or who have received medical treatment for cancer within the past year, and parents of these youth.

WHY: To learn more about adjustment after children and adolescents are diagnosed with cancer to determine strategies that help in improve adjustment, such as having positive feelings and better experiences returning to school.

WHAT: Youth and one of his/her parents will each be asked to respond to questions on a set of written surveys (about 30-40 minutes). Surveys will ask questions, for example, about feelings and school experiences.

WHERE: Surveys will be sent to you so that you may complete them at home or at a place that you choose. Self-addressed stamped envelopes will be provided for you to return the surveys.

POTENTIAL RISKS: This research study presents minimal risk.

POTENTIAL BENEFITS: There is no direct benefit from being in this study. However, taking part in the research study may help others in the future. For example, information from this study may help provide more information on adjustment which could possibly be used to improve care for youth who are diagnosed with cancer in the future.

PAYMENT: Youth and parent participants will each be given a $10 gift card (i.e., grocery, Target, electronics, gas) for their participation. They may also be entered into a raffle for gift cards of larger amounts (up to $100).

HOW: To learn more about this research, please contact Renee Corbett, M.A. at (xxx)-xxx-xxxx, or by email at rcorbet2@mail.usf.edu

Appendix C: Recruitment Flyer for Hospital

Hospital

Adaptive Styles and Coping Strategies in Youth Diagnosed with Cancer: Relationship to Well-Being, Psychosocial Adjustment, Education, and Parents' Adaptive Styles

Volunteers Wanted for a Research Study

WHO: Youth between the ages of 9 and 17 who are currently receiving medical treatment for cancer or who have received medical treatment for cancer within the past year, and parents of these youth.

WHY: To learn more about adjustment after children and adolescents are diagnosed with cancer to determine strategies that help improve adjustment, such as having positive feelings and better experiences returning to school.

WHAT: Youth and one of his/her parents will each be asked to respond to questions on a set of written surveys (about 30-40 minutes). Surveys will ask questions, for example, about feelings and school experiences.

WHERE: Surveys may be completed here before you leave, or you may take them home to complete. Self-addressed stamped envelopes will be provided for you to return the surveys.

POTENTIAL RISKS: This research study presents minimal risk.

POTENTIAL BENEFITS: There is no direct benefit from being in this study. However, taking part in the research study may help others in the future. For example, information from this study may help provide more information on adjustment which could possibly be used to improve care for youth who are diagnosed with cancer in the future.

PAYMENT: Youth and parent participants will each be given a $10 gift card (i.e., grocery, Target, electronics, gas) for their participation. They may also be entered into a raffle for gift cards of larger amounts (up to $100)

HOW: To learn more about this research, please contact Renee Corbett, M.A. at (xxx)-xxx-xxxx, or by email at rcorbet2@mail.usf.edu

Appendix D: Agency Recruitment Letter

Dear _____,

(Agency)_____ is working with Renee Corbett from the University of South Florida to learn more about the adjustment of youth, and parents of youth, who have been diagnosed with cancer. Please review the attached flyer so that you might decide if you would like to participate in this opportunity.

If you have questions about this opportunity and/or would like to participate, please contact Renee Corbett by phone (xxx) xxx-xxxx or email: rcorbet2@mail.usf.edu

Thank you very much,

(Name of agency contact)

(Agency)_____

Appendix E: Demographic Questionnaire and Education Information

BACKGROUND INFORMATION FORM

Participant Study ID #: _____

Thank you for taking the time to participate in this study of adaptive styles in youth diagnosed with cancer. The information you provide will be confidential. Please answer the following questions, under "Caregiver Information," about yourself. Please answer the remaining questions, under "Youth Information," about your child who has been diagnosed with cancer. If you have any questions, please do not hesitate to contact the Primary Investigator, Renee Corbett, at xxx-xxx-xxxx or rcorbet2@mail.usf.edu

CAREGIVER INFORMATION

**** Please answer these questions about yourself ****

1. What is your gender? (circle one) a. Male b. Female

2. What is your age? (circle one)
   a. Under 20 years
   b. 20-24 years
   c. 25-29 years
   d. 30-34 years
   e. 35-39 years
   f. 40-44 years
   g. 45-49 years
   h. 50-54 years
   i. 55 years or older

3. What is your ethnicity? (circle one)
   a. Hispanic
   b. Not Hispanic
   c. Prefer not to answer

4. What is your race? (circle all that apply)
   a. American Indian/Alaskan Native
   b. Asian/Pacific Islander
   c. Black
   d. White
   e. Mixed
   f. Other:_____
   g. Prefer not to answer

5. What is your educational background? (circle one)
   a. Attended some high school
   b. Graduated high school
   c. Obtained GED
   d. Technical school
   e. Associate's degree
   f. Bachelor's degree

Appendix E (Continued)

g. Master's degree
h. Graduate school/Professional licensure (Ph.D., M.D., etc.)
i. Other _____

YOUTH INFORMATION

****Please answer these questions about your child who was diagnosed with cancer****

1. What is your child's gender? (circle one) a. Male b. Female

2. What is your child's age? _____

3. What grade is your child in this year? _____

4. What is your child's ethnicity? (circle one)
   a. Hispanic
   b. Not Hispanic
   c. Prefer not to answer

5. What is your race? (circle all that apply)
   a. American Indian/Alaskan Native
   b. Asian/Pacific Islander
   c. Black
   d. White
   e. Mixed
   f. Other:_____
   g. Prefer not to answer

6. What type of cancer was your child diagnosed with? _____

7. When was your child diagnosed with cancer? (*month/year*) _____

8. When did your child begin treatment? (*month/year*) _____

9. If applicable, when did your child complete treatment? (*month/year*)
   _____

10. What stage of treatment is your child currently in? (circle one)
    a. Remission induction
    b. Consolidation
    c. Maintenance
    d. Completed treatment

Appendix E (Continued)

e. I don't know
f. Not applicable (if your child has been diagnosed with a type of cancer other than Leukemia, these stages may not be applicable)

11. If applicable, what type(s) of medical treatment is your child currently receiving (i.e., radiation, chemotherapy)?
_____

12. If applicable, how frequently is your child currently receiving this treatment (i.e., weekly, twice a month, etc.)?
_____

13. What other type(s) of medical treatment has been used to treat your child's cancer?
    a. Chemotherapy
    b. Radiation
    c. Surgery
    d. Bone marrow transplant
    e. Other:_____
    f. No other treatments
    g. I don't know

14. Prior to your child's cancer diagnosis, did he/she receive any special education services? (circle one) a. Yes b. No

    If YES, what type (circle all that apply)?
    (note: can be either in general or special education settings)
    a. Assistive technology
    b. Hearing/Vision
    c. Instructional support
    d. Mental health counseling
    e. Occupational therapy
    f. Physical therapy
    g. School health services
    h. Special transportation
    i. Speech/Language services
    j. Targeted academic/behavioral intervention
    k. Other: _____

Appendix E (Continued)

15. Since your child's cancer diagnosis, has he/she received any special education services at your school? (circle one) a. Yes b. No

    If YES, what type? (circle all that apply)
    (note: can be either in general or special education settings)
    a. Assistive technology
    b. Hearing/Vision
    c. Instructional support
    d. Mental health counseling
    e. Occupational therapy
    f. Physical therapy
    g. School health services
    h. Special transportation
    i. Speech/Language services
    j. Targeted academic/behavioral intervention
    k. Other: _____

16. Prior to your child's cancer diagnosis, approximately how many school days did your child miss per school year? _____

17. Since your child has been diagnosed with cancer, how many school days has he/she missed? _____

18. Prior to your child's cancer diagnosis, was your child retained in any grade? (circle one)
    a. YES b. No

    If YES, what grade? _____

19. Since your child's diagnosis, has he/she been retained?
    (circle one) a. Yes b. No

20. Do have reason to suspect that your child will be retained?
    (circle one) a. Yes b. No

    Please explain (i.e., discussed with teacher, IEP meeting, etc.)
    _____

    _____

    _____

Appendix F: IRB Approval Letter

USF
UNIVERSITY OF
SOUTH FLORIDA

RESEARCH INTEGRITY AND COMPLIANCE
Institutional Review Boards, FWA No. 00001669
12901 Bruce B. Downs Blvd., MDC035 • Tampa, FL 33612-4799
(813) 974-5638 • FAX (813) 974-7091

August 19, 2013

Renee Corbett
Psychology
4202 East Fowler Ave, PCD4118G
Tampa, FL 33620

RE: **Expedited Approval for Initial Review**
IRB#: Pro00013749
Title: Adaptive Styles and Coping Strategies of Youth Diagnosed with Cancer: Relationship to Well-Being, Psychosocial and Educational Adjustment, and Parents' Adaptive Styles

Study Approval Period: 8/19/2013 to 8/19/2014

Dear Ms. Corbett:

On 8/19/2013, the Institutional Review Board (IRB) reviewed and **APPROVED** the above application and all documents outlined below.

Approved Item(s):
Protocol Document(s):
DissProp.Corbett.Revised.08.09.13.docx

Data collection from other sites will be sent via an Amendment before data collection can begin at those sites.

Study involves children and falls under 45 CFR 46.404: Research not involving more than minimal risk

Consent/Assent Document(s)*:
Parent and Permission ICF ver#1 7.24.13.pdf
Youth 12-17 Assent ver#1 7.24.13.pdf

Child Assent Form ver1 07.24.13.docx (not stamped as it is verbal assent)

*Please use only the official IRB stamped informed consent/assent document(s) found under the

Appendix F (Continued)

"Attachments" tab. Please note, these consent/assent document(s) are only valid during the approval period indicated at the top of the form(s).

It was the determination of the IRB that your study qualified for expedited review which includes activities that (1) present no more than minimal risk to human subjects, and (2) involve only procedures listed in one or more of the categories outlined below. The IRB may review research through the expedited review procedure authorized by 45CFR46.110 and 21 CFR 56.110. The research proposed in this study is categorized under the following expedited review category:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

As the principal investigator of this study, it is your responsibility to conduct this study in accordance with IRB policies and procedures and as approved by the IRB. Any changes to the approved research must be submitted to the IRB for review and approval by an amendment.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,

John Schinka, Ph.D., Chairperson
USF Institutional Review Board

Appendix G: Introductory Letter for Youth

Dear _____,

This packet has been given to you because you said you are interested in participating in this study. The purpose of this study is to learn more about how you are adjusting since you were diagnosed with cancer. For example we would like to learn more about your feelings and how you are doing with school. This is what is in your packet:

Assent Form

- The assent form is for you to look over. This form lets you know about the study and why you are being asked to take part in the study. If you choose to participate in the study, please print your name and date and sign it on the second page. The second copy of this form is provided for you to keep.

Surveys

- The Feelings and Emotions (PANAS-C) has 27 questions about your feelings.
- The Life Satisfaction Scale has 7 questions about what you think about your life.
- The CSD survey has 25 questions about behaviors.
- The How-I-Feel survey has 20 questions about your feelings.
- The CERQ survey has 36 questions about your thoughts about your illness.

It is very important that you complete these surveys by yourself, so that your answers are private and you feel comfortable answering the questions honestly. If you need help reading the surveys or any questions, please feel free to contact me! You can also contact me if you have any questions or concerns.

My phone number is: (xxx) xxx-xxxx

My email address is: rcorbet2@mail.usf.edu

When you are finished, place your completed assent form and all completed surveys in the envelope that says "youth" on the back. Seal it, sign your name across the flap so the envelope cannot be opened without tearing your name, and put it in the mailbox!

Your $10 gift card will be mailed to you within 7 days after I receive your completed surveys! You will also be included in a raffle for additional gift cards which will take place periodically while the study is in progress.

Thank you for taking the time to review and complete this packet!

Sincerely,

Renee Corbett, M.A., Ed.S.

Appendix H: Introductory Letter for Parent

Dear _____,

This packet has been given to you because you said you are interested in participating in this study. The purpose of this study is to learn more about how you and your child are adapting since your child was diagnosed with cancer. We also would like to learn about how your child is doing with school-related issues, feelings, and behavior. You will find the following materials in this packet:

Consent Form

- The consent form informs you about the study and why you and your child are being asked to take part in the study. If you have carefully reviewed the Adult Consent and Parental Permission form, agree to participate, and agree to allow your child to participate in the study, please sign, date and print your name on page 4 of the form. Please return the entire packet with your other questionnaires. A second copy of this form is included for you to keep for your records.

Surveys

- The Information Form requests background information about you and your child, as well as information about your child's education.
- The CBCL (Child Behavior) is a 113-item survey about your child's behaviors and emotions.
- The CMSDS is a 33-item survey about your attitudes and traits.
- The STAI is a 20-item survey about how you generally feel.

It is important that you complete these surveys privately so that you feel comfortable answering them honestly. Please feel free to contact me if you have any questions or concerns at (xxx) xxx-xxxx or rcorbet2@mail.usf.edu

After you have completed the consent form and surveys, please place completed forms in the envelope marked "caregiver" on the back. Seal the envelope, sign across the flap so that it cannot be opened without tearing your signature, and put the envelope in the mail!

Your $10 gift certificate will be mailed to you within one week after I receive your completed surveys! You will also have a chance to win extra gift cards over the next few months.

Thank you for taking the time to complete these surveys!

Sincerely,

Renee R. Corbett, M.A., Ed.S.

Appendix I: Youth Assent Form

Dear Youth Participant,

You are being asked to take part in a research study about your feelings and thoughts, and how cancer has or has not affected your life. The title of the study is "Adaptive Styles and Coping Strategies of Youth Diagnosed with Cancer: Relationship to Well-Being, Psychosocial and Educational Adjustment, and Parents' Adaptive Styles." You are being asked to take part in this study because you are a child or adolescent who is currently in treatment for cancer or has been treated for cancer in the past year.

To take part in this study, you will be asked to fill-out five surveys. These surveys will ask you questions about your life, your thoughts and your feelings. Your answers will stay private unless you are in danger, then we will have to get help to make sure you stay safe. If you decide to take part in the study you still have the right to change your mind later. No one will think badly of you if you decide to stop.

Assent to Participate

I understand what the person running this study is asking me to do. I have thought about this and agree to take part in this study.

_____ _____

Name of person agreeing to take part in the study Date

_____ _____

Name of person providing information to child Date

Appendix J: Parent Permission and Consent

Dear Parent(s)/Caregiver(s),
Research shows that children and adolescents who have been diagnosed with cancer have varying levels of adjustment - emotionally, behaviorally, and educationally. Some youth appear to be very resilient, despite the great difficulties this illness presents, while other youth really struggle with the problems that cancer and its treatment present. It is unclear what differences exist between these youth that might promote or prevent better adjustment. Possibilities may include the adaptive style and coping strategies used by children who have been diagnosed with cancer. This letter provides information about a study that will be done to determine the nature of the relationship between children's adaptive style/coping strategies and their emotional, behavioral, and educational adjustment, as well as the relationship between their adaptive styles and their parents' adaptive styles.

- ✓ Who We Are: The research project is led by Renee Corbett, Ed.S., a doctoral student in the School Psychology Program at the University of South Florida (USF). She is being guided in this research by Kathy Bradley-Klug, Ph.D., a professor in the School Psychology Program at USF.

- ✓ Why We are Requesting You and Your Child's Participation: This study is being conducted as part of a project entitled, "Adaptive Styles and Coping Strategies of Youth Diagnosed with Cancer: Relationship to Well-Being, Psychosocial and Educational Adjustment, and Parents' Adaptive Styles." You and your child are being asked to participate in this project because your child is between the ages of 9 and 17 and is currently receiving medical treatment for cancer (or has received medical treatment for cancer in the past year).

- ✓ Why You and Your Child Should Participate: Because we need to know more about the differences in how children cope with cancer, so that we can better help those children who are having more difficulty with coping and adjustment. In this study, information about you and your child will be combined with information about all other participating youth and their families. If you and your child choose to participate, you and your child will EACH receive a $10 gift card for a store or restaurant (i.e. WalMart, Taco Bell). Also, all participants completing the surveys will be placed into a drawing for one of several higher valued gift cards (i.e., $50 Target gift card).

- ✓ What Your Child's Participation Requires: Children with written permission to participate in the study will fill out five self-report surveys that ask children about their recent attitudes, feelings, and behaviors. The entire packet of questions will take 30-40 minutes to complete. We are asking children to sign/print their name on the assent form and on a form indicating that he/she is the person who completed the surveys and that they did so independently. He/she will place the completed packet in the self-addressed and stamped envelope provided, seal the envelope, sign the back of the envelope across the flap, and mail the envelope (or give to adult to put in the mail).

- ✓ What Parent Participation Requires: The child's parent (mother, father, or other caregiver who is primarily responsible for the care and well-being of the child) will be asked to fill out a demographic form asking about background information on the child and parent, information about the child's illness and treatment, and information about the child's education. Parents will be asked to complete three additional self-report surveys asking about their attitudes and feelings and their child's behavior. We are asking parents to place their completed packet of surveys in the self-addressed and stamped envelope provided with the signed consent form and signed survey completion form (indicating that you are the person who completed the forms, and you completed them independently), seal the envelope, sign the back flap, and mail the envelope.

- ✓ Please Note: Your decision to allow yourself and your child to participate in this research study must be completely voluntary. You are free to allow yourself and/or your child to participate in this research study or to withdraw 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 or patient status, his or her grades or medical treatment, or your relationship with your school, medical facility, USF, or any other party.

- ✓ Confidentiality of Your Responses and Your Child's Responses: There is minimal risk to you or your child for participating in this research, and your child will also be given the opportunity to decide if he or she would like to participate. Your family's privacy and research records will be kept confidential to the extent of the law. Authorized research personnel, 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 we will not share your or your child's individual responses to the surveys with school, medical, or agency personnel or anyone other than us and our research assistants. Your completed surveys and your child's completed surveys will be assigned a code number to protect the confidentiality of all responses. Only Renee Corbett (primary researcher) will have access to the locked file cabinet that will contain all records linking code numbers to participants' names. All records from the study (completed student and parent surveys) will be destroyed five years after the study is completed.

- ✓ What We'll Do With Your Family's Responses: Results of this study may be published. However, the data obtained from you and your child will be combined with data from the other families in the publication. The published results will not include your or your child's name or any other information that would in any way personally identify your family.

- ✓ Questions? If you have any questions about this research study, please contact Renee Corbett at rcorbet2@mail.usf.edu or (xxx)xxx-xxxx. 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) 974-5638; please refer to eIRB #_____ .

- ✓ Want to Participate? To permit yourself and your child to participate in the study, please complete the attached permission form and return it with your completed surveys.

Permission for Child to Take Part in this Research Study

☐ I do not give permission to let my child take part in this 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 permission form for my records.

_____ _____

Printed name of child Date

_____ _____

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

Consent for Parent/Primary Caregiver to Take Part in this Research Study*

☐ I do not consent to participate in this study.

☐ I freely give my consent 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 parent/caregiver taking part in study	Printed name of parent/caregiver	Date

Section to be completed by USF:
Statement of Person Obtaining Informed Consent

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

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

Appendix K: Youth Survey Completion Form

SURVEY COMPLETION FORM - Youth

By signing or printing my name below, I am saying that I am the person who answered all the questions in this survey packet. By signing or printing my name below, I am also saying that I completed the surveys by myself, so I did not have to worry about other people seeing my answers.

_____ _____

Name of Youth Participant Date

Appendix L: Caregiver Survey Completion Form

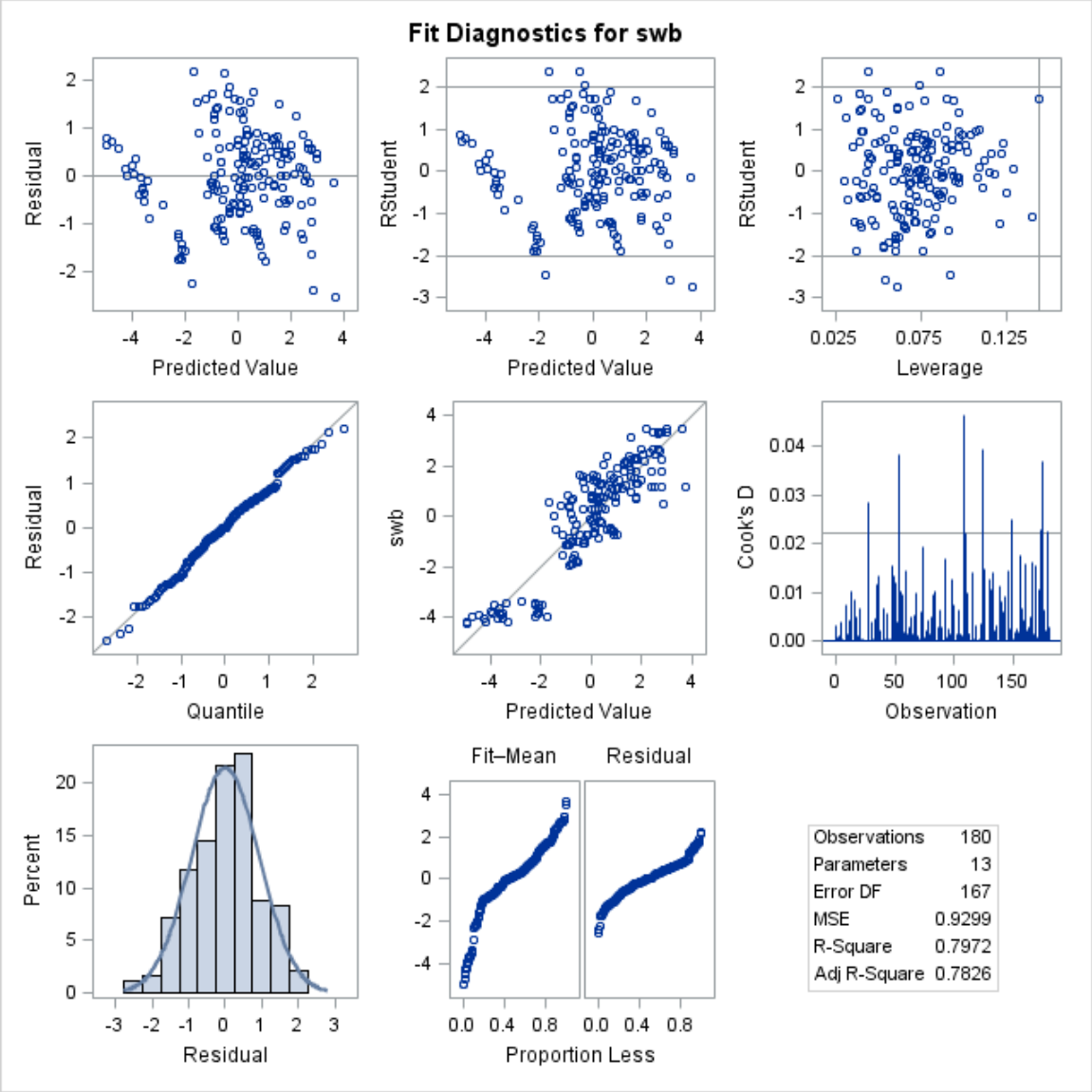
SURVEY COMPLETION FORM - Caregiver

By signing below, I indicate that the answers in these surveys are my answers, that I am the person who completed all of the surveys, and that I completed the surveys independently.

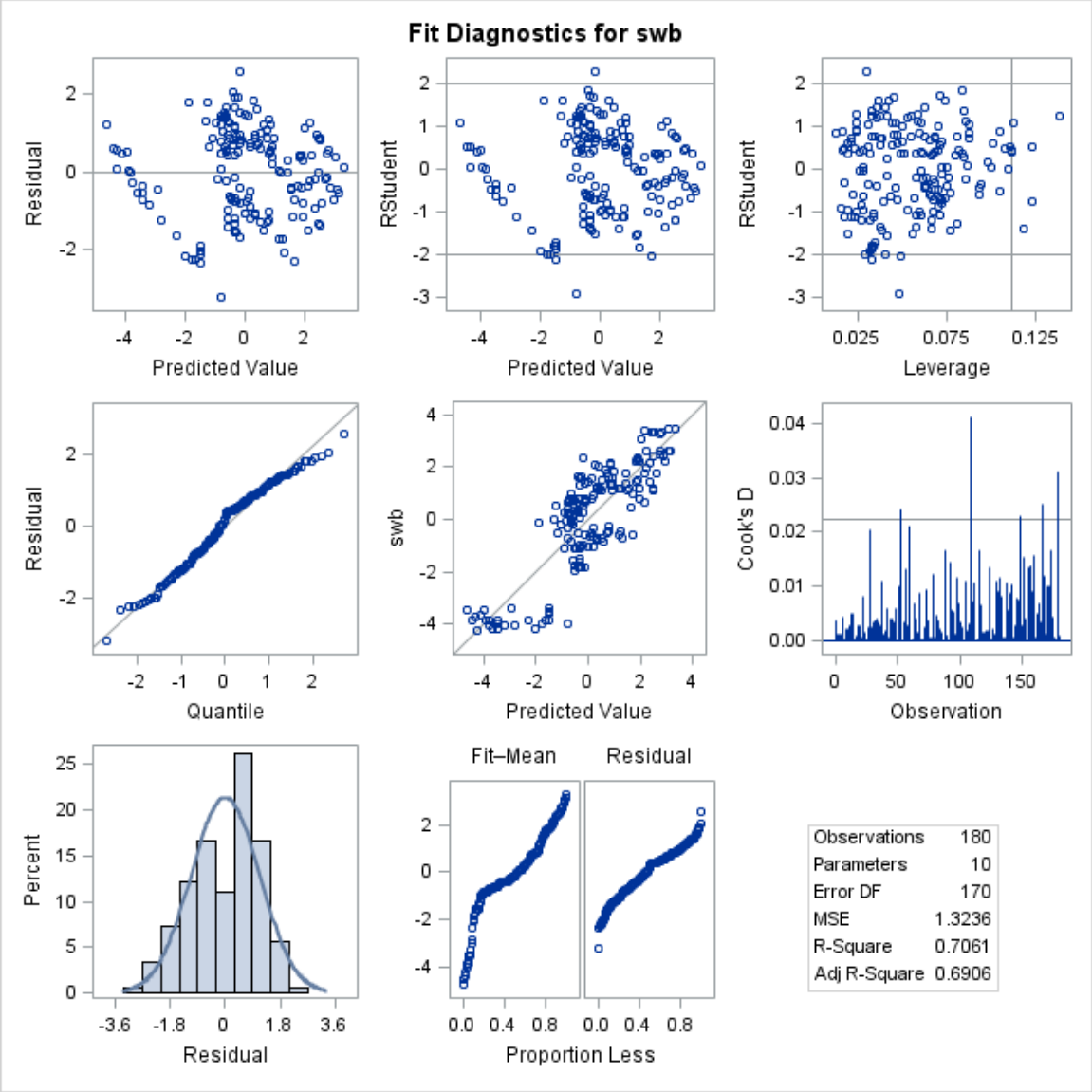
_____ _____

Signature of caregiver who completed surveys Date

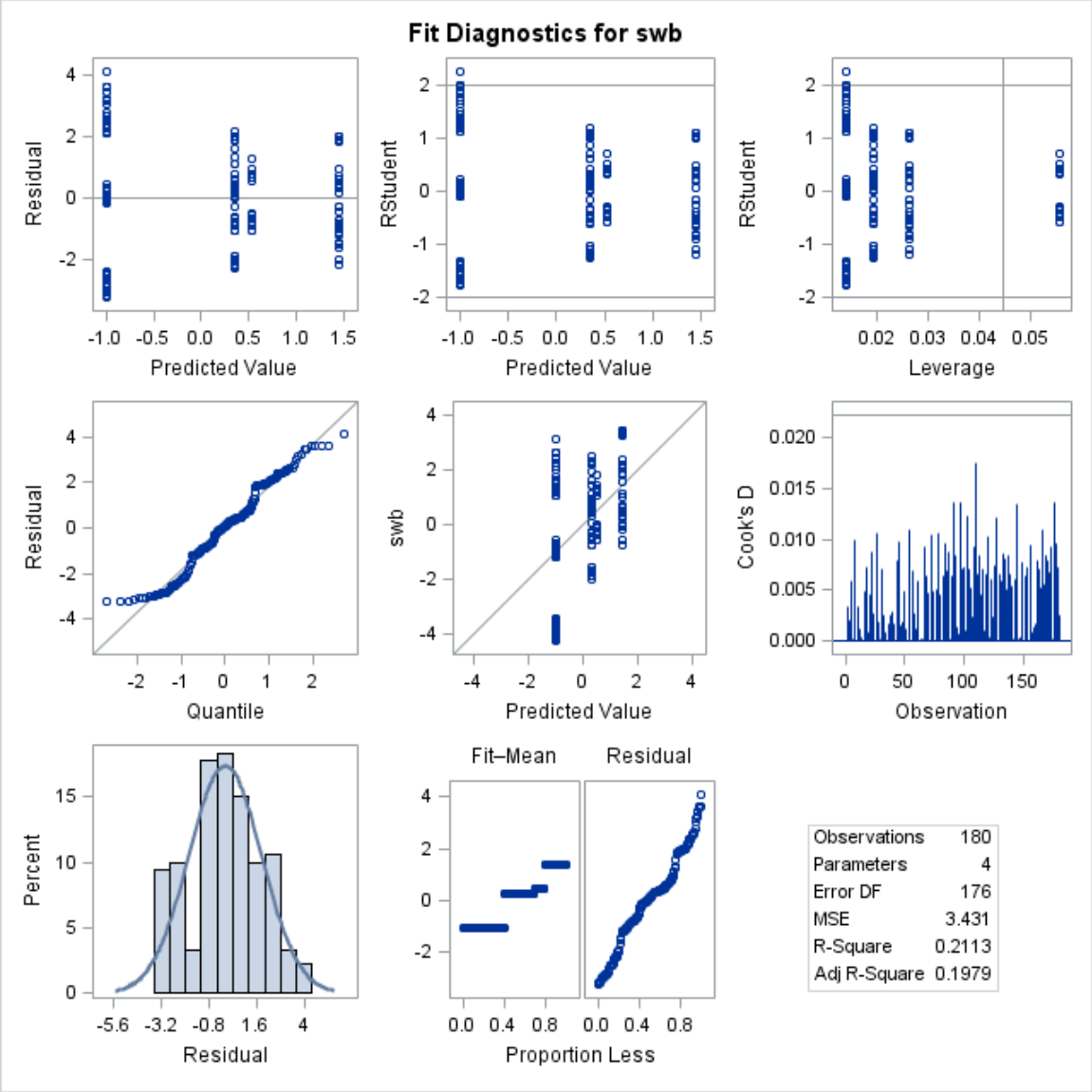
Appendix M: Coping Strategies and Adaptive Styles as Predictors of Subjective Well-Being



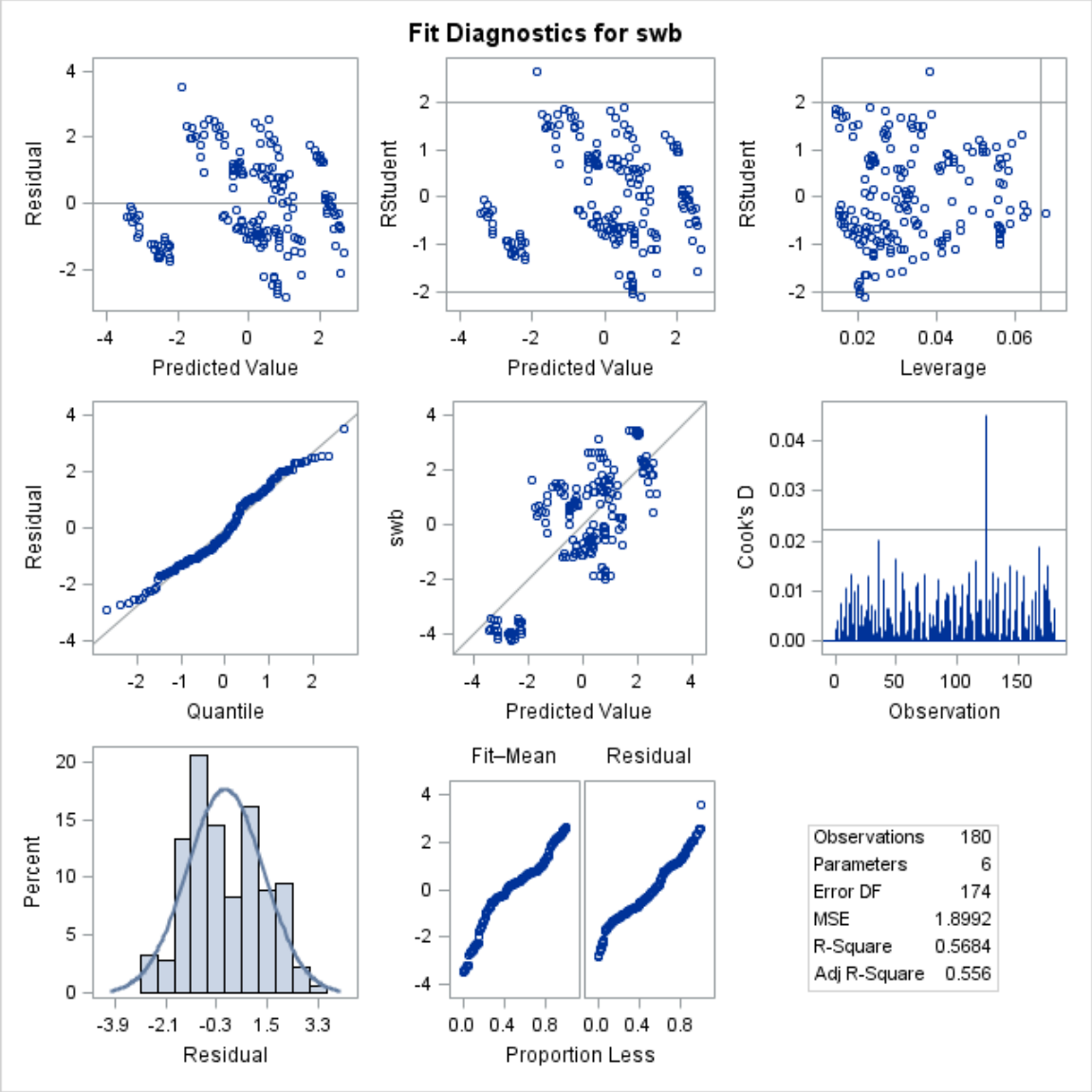
Appendix N: Coping Strategies as Predictors for Subjective Well-Being



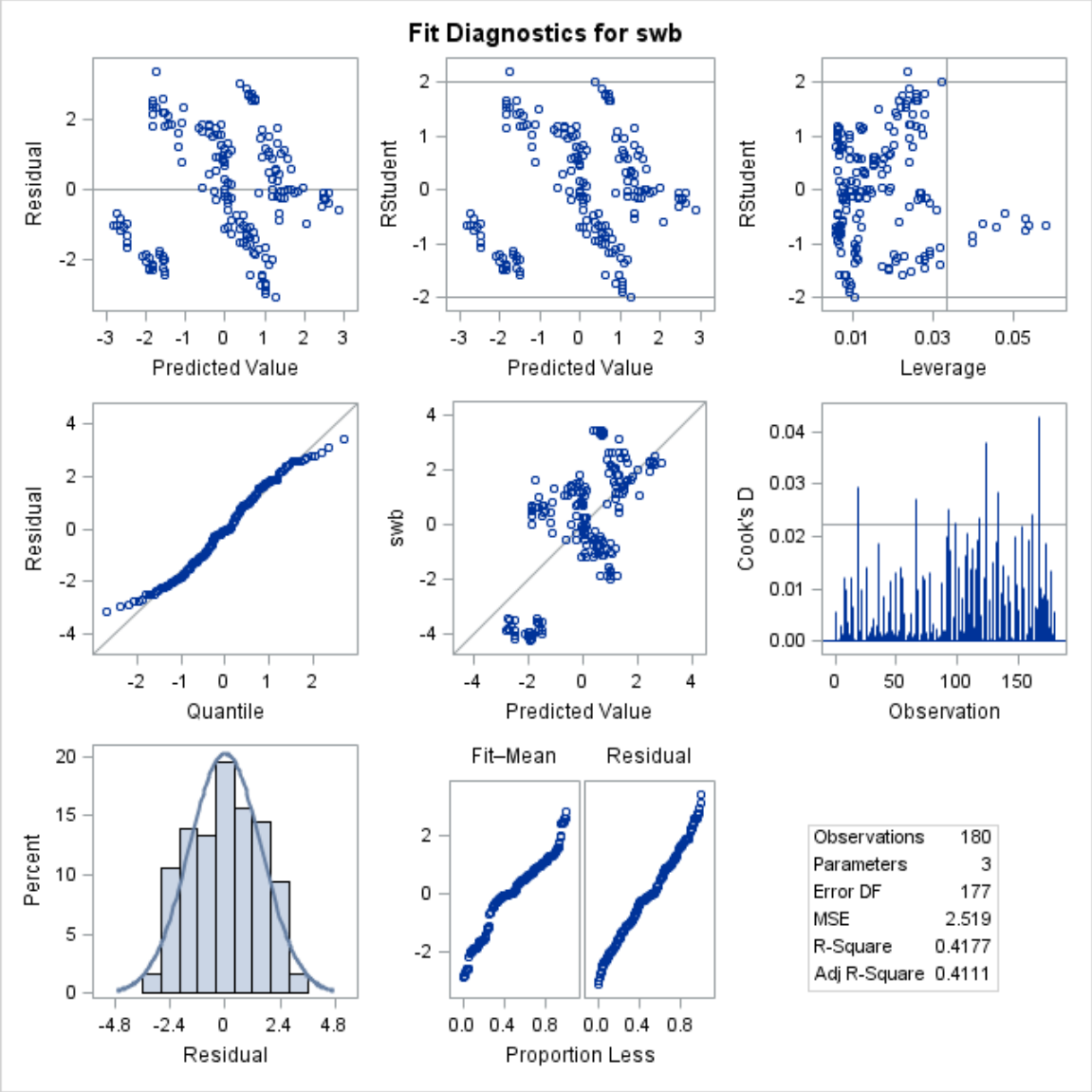
Appendix O: Adaptive Styles as Predictors for Subjective Well-Being



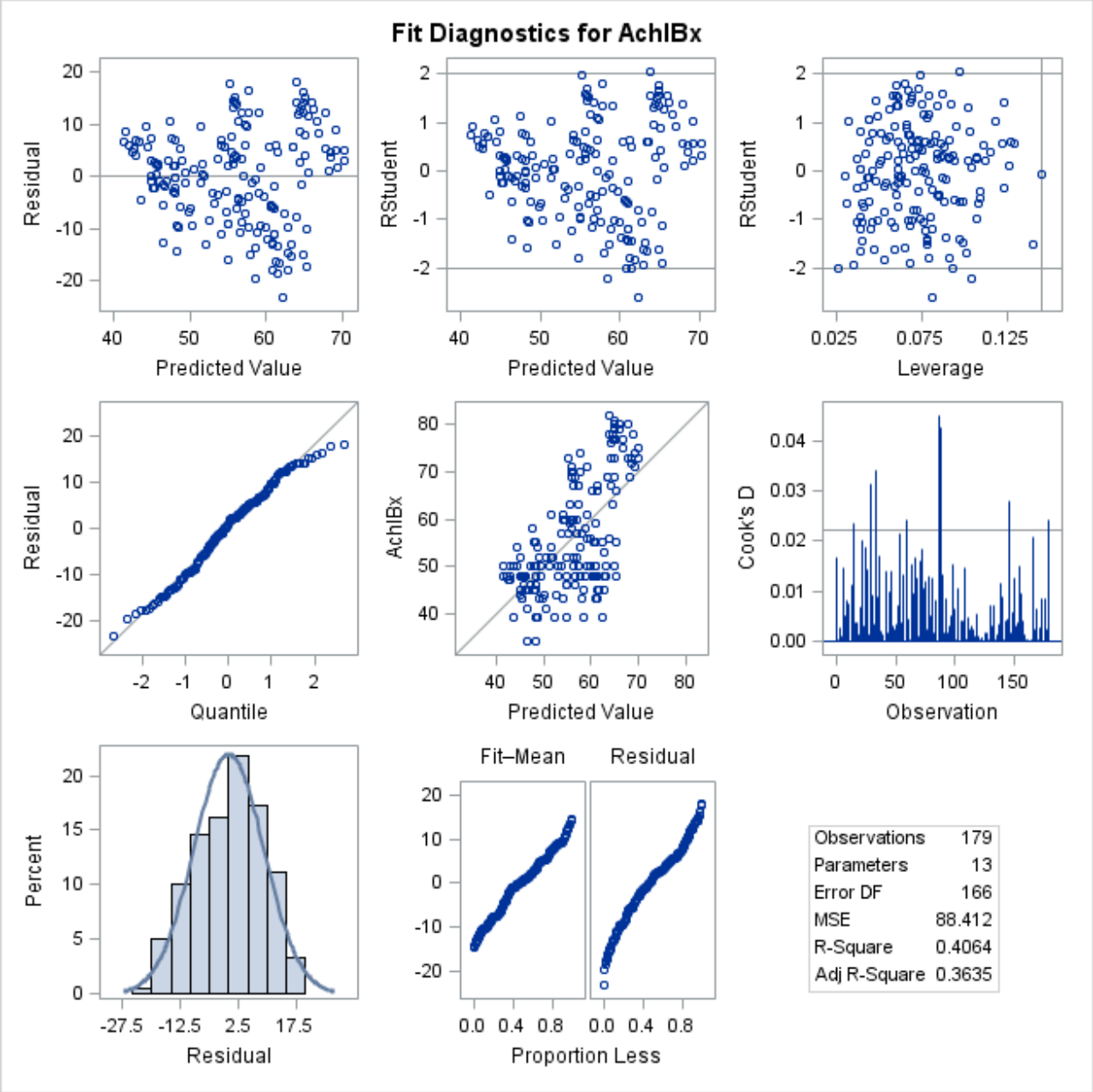
Appendix P: Coping Strategy Types and Adaptive Style as Predictors of Subjective Well-Being



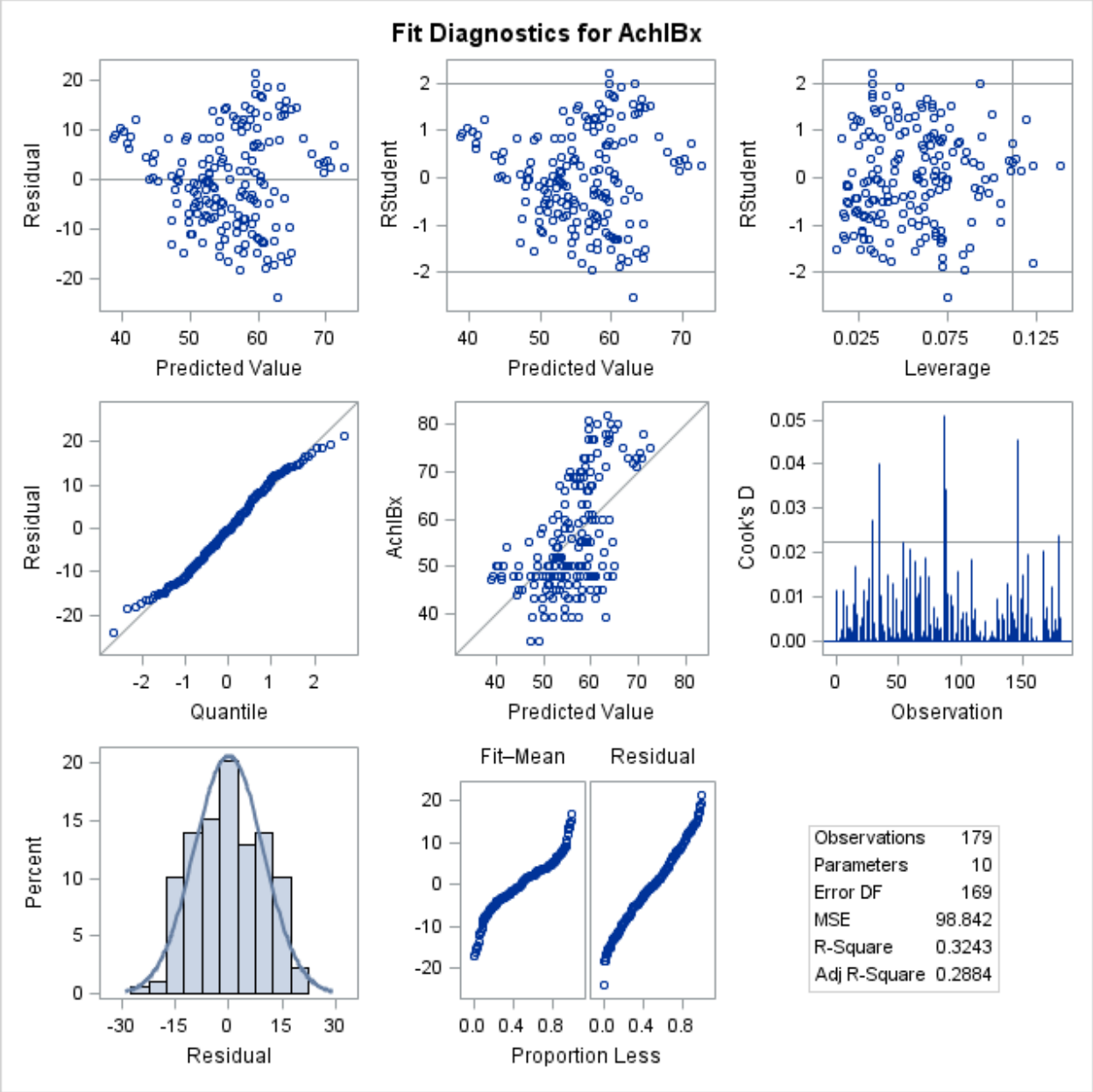
Appendix Q: Coping Strategy Types as Predictors of Subjective Well-Being



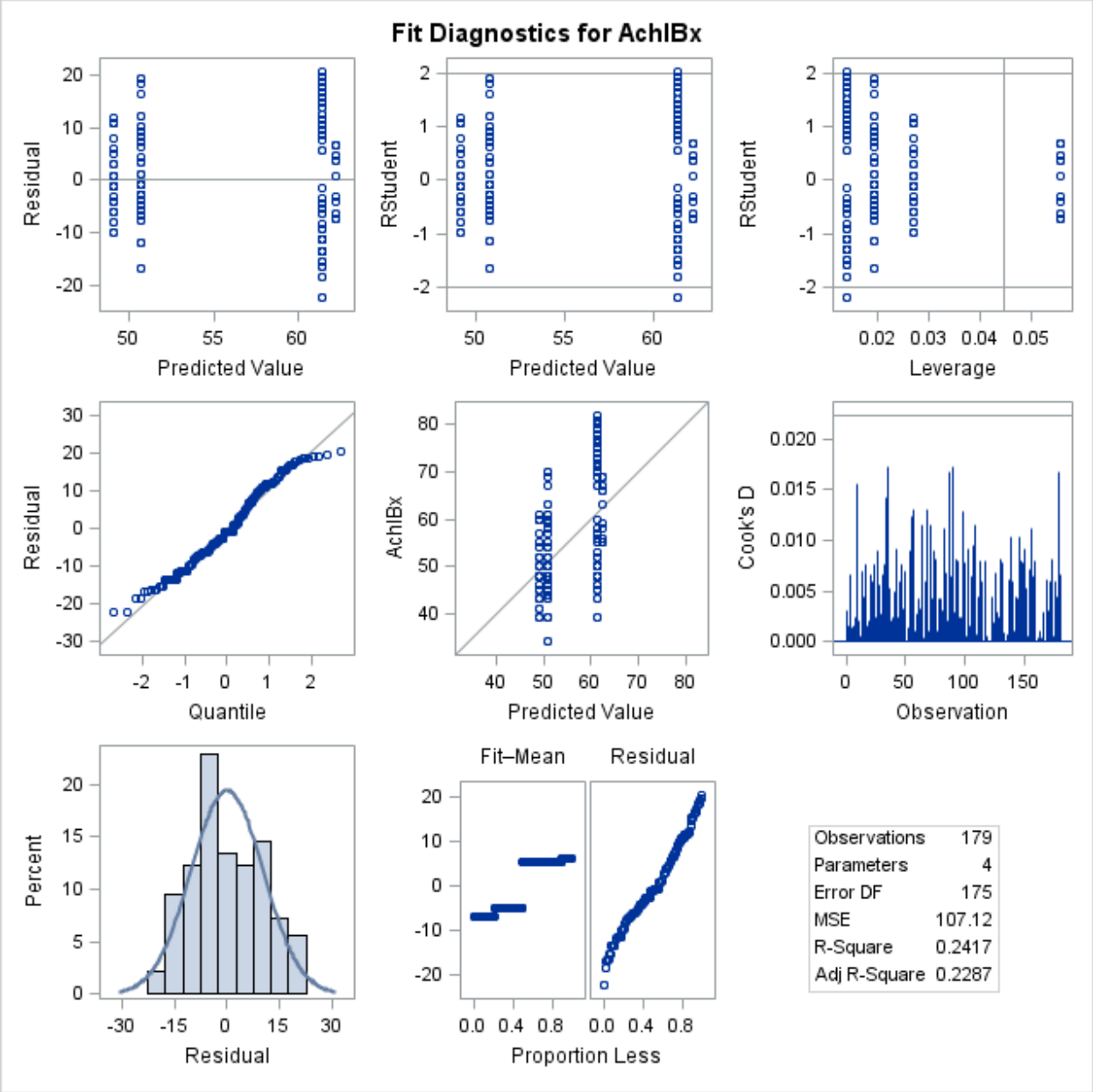
Appendix R: Coping Strategies and Adaptive Styles as Predictors of Internalizing Behaviors



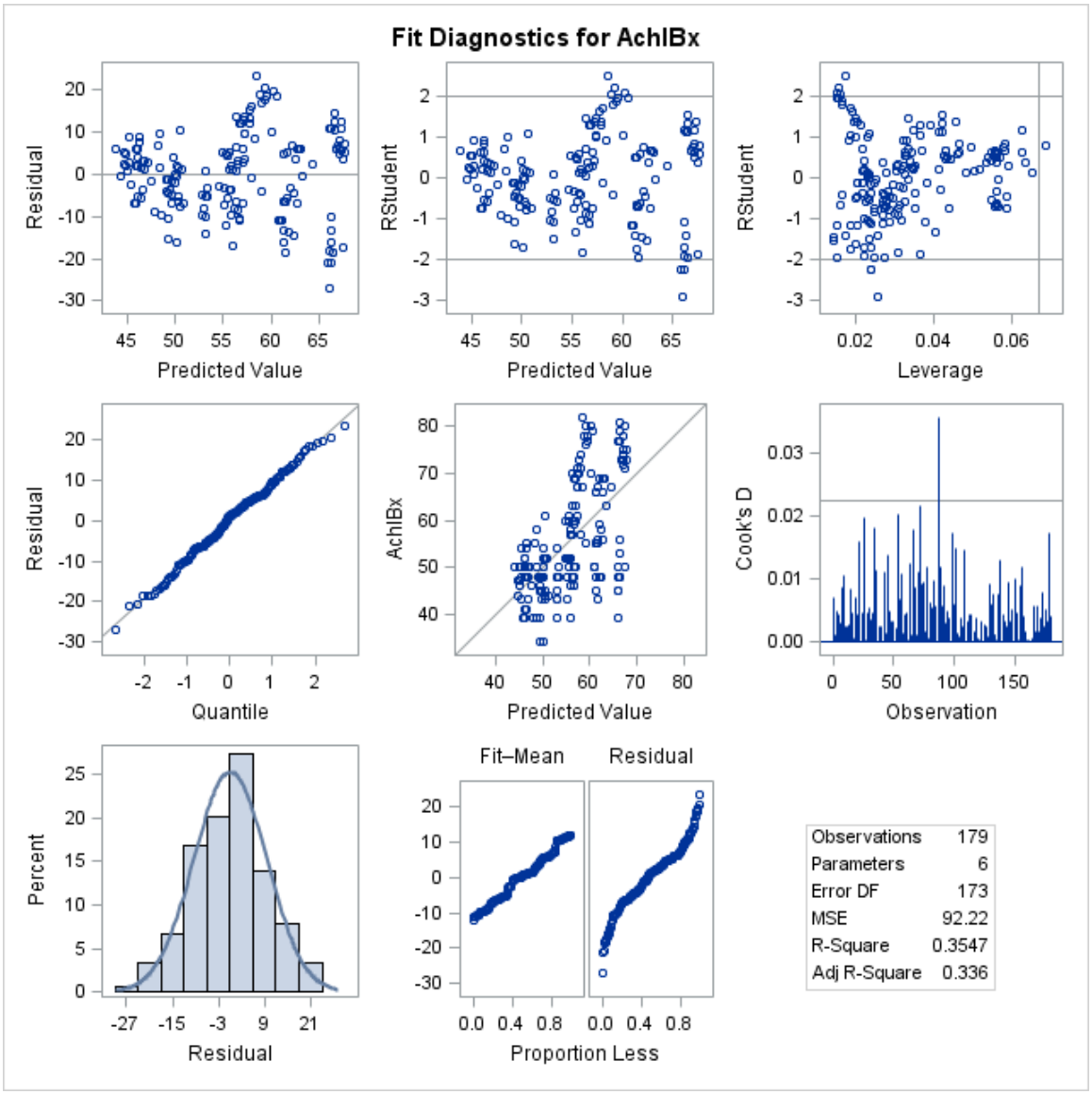
Appendix S: Coping Strategies as Predictors of Internalizing Behavior



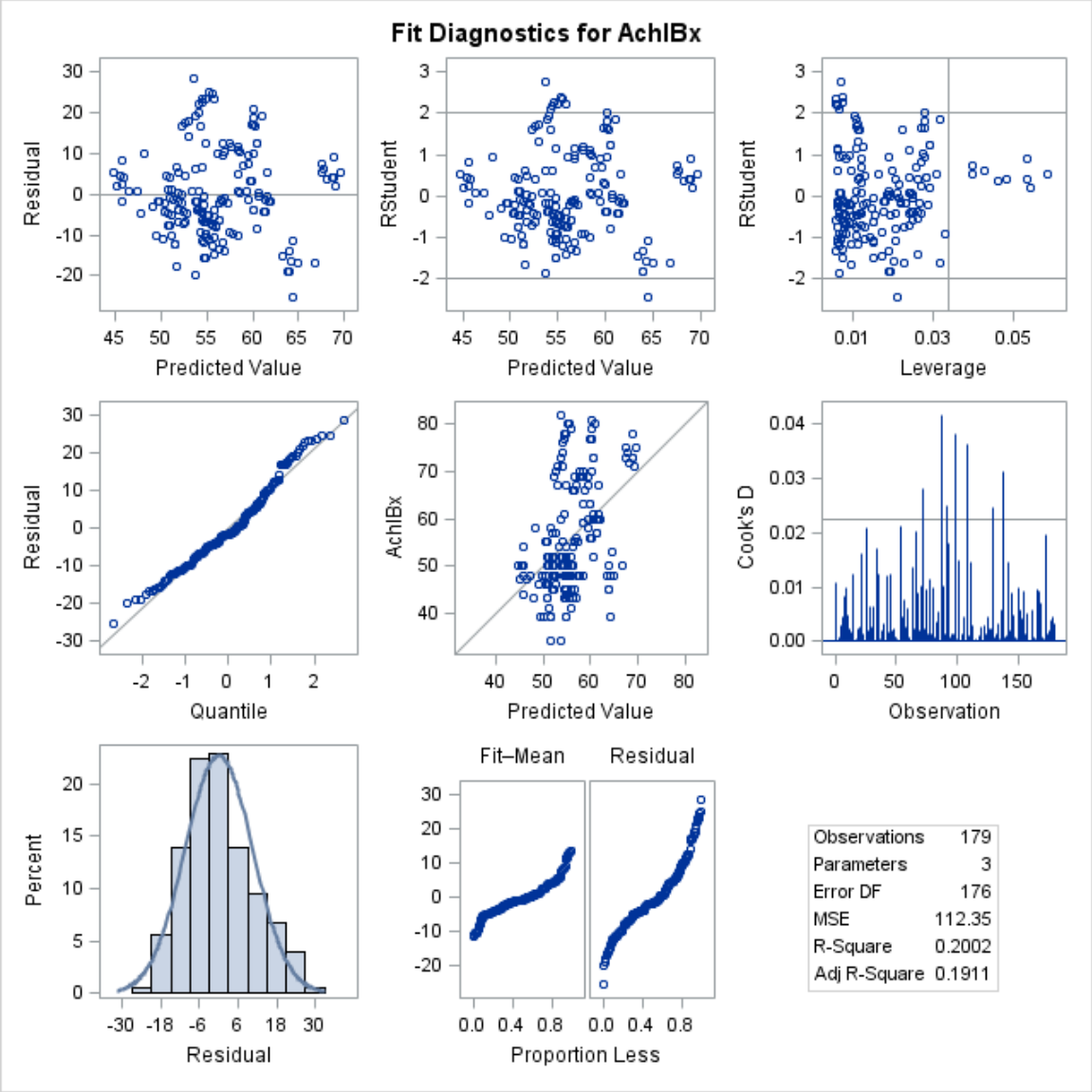
Appendix T: Adaptive Styles as Predictors of Internalizing Behavior



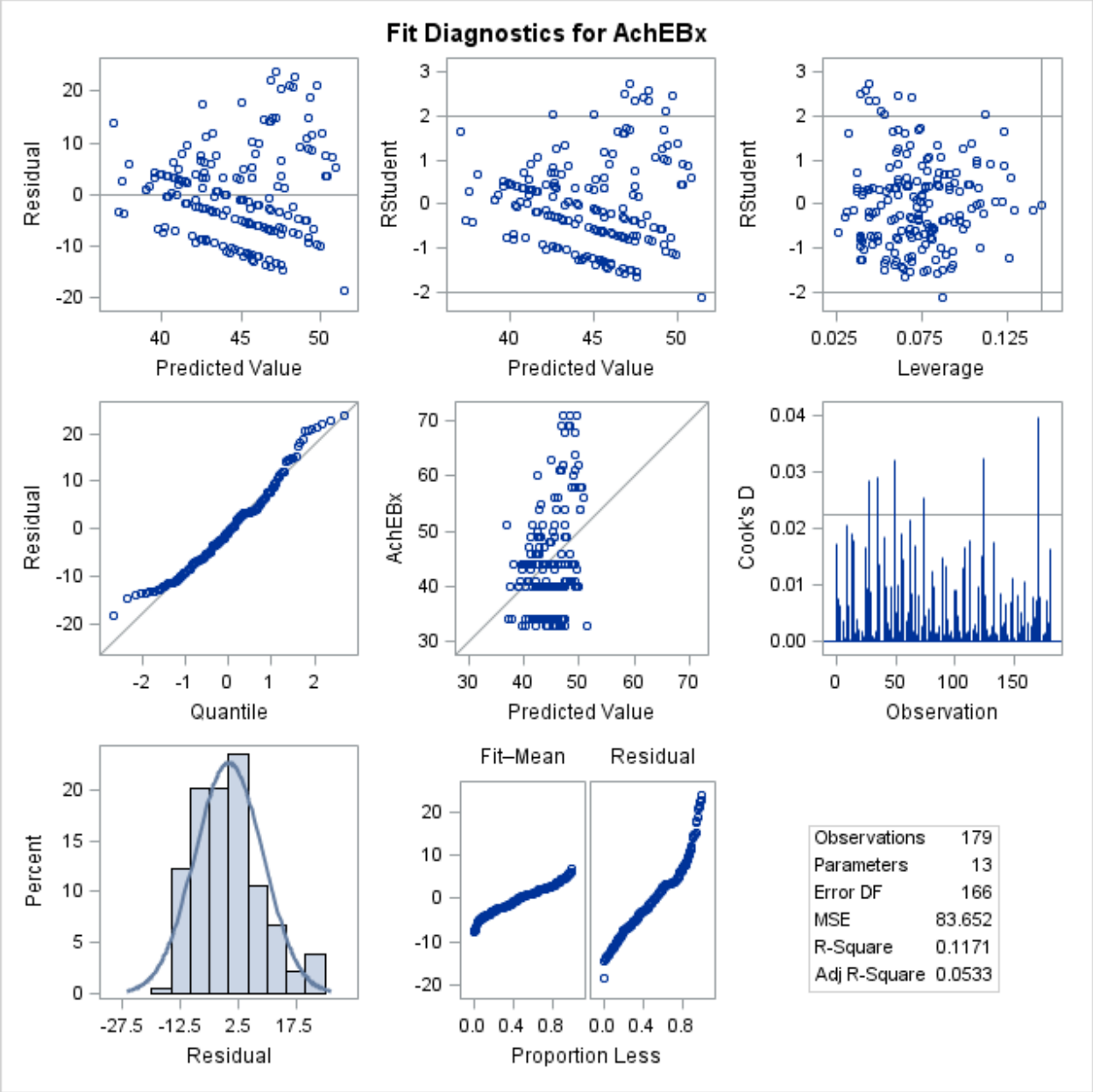
Appendix U: Coping Strategy Types & Adaptive Styles as Predictors of Internalizing Behavior



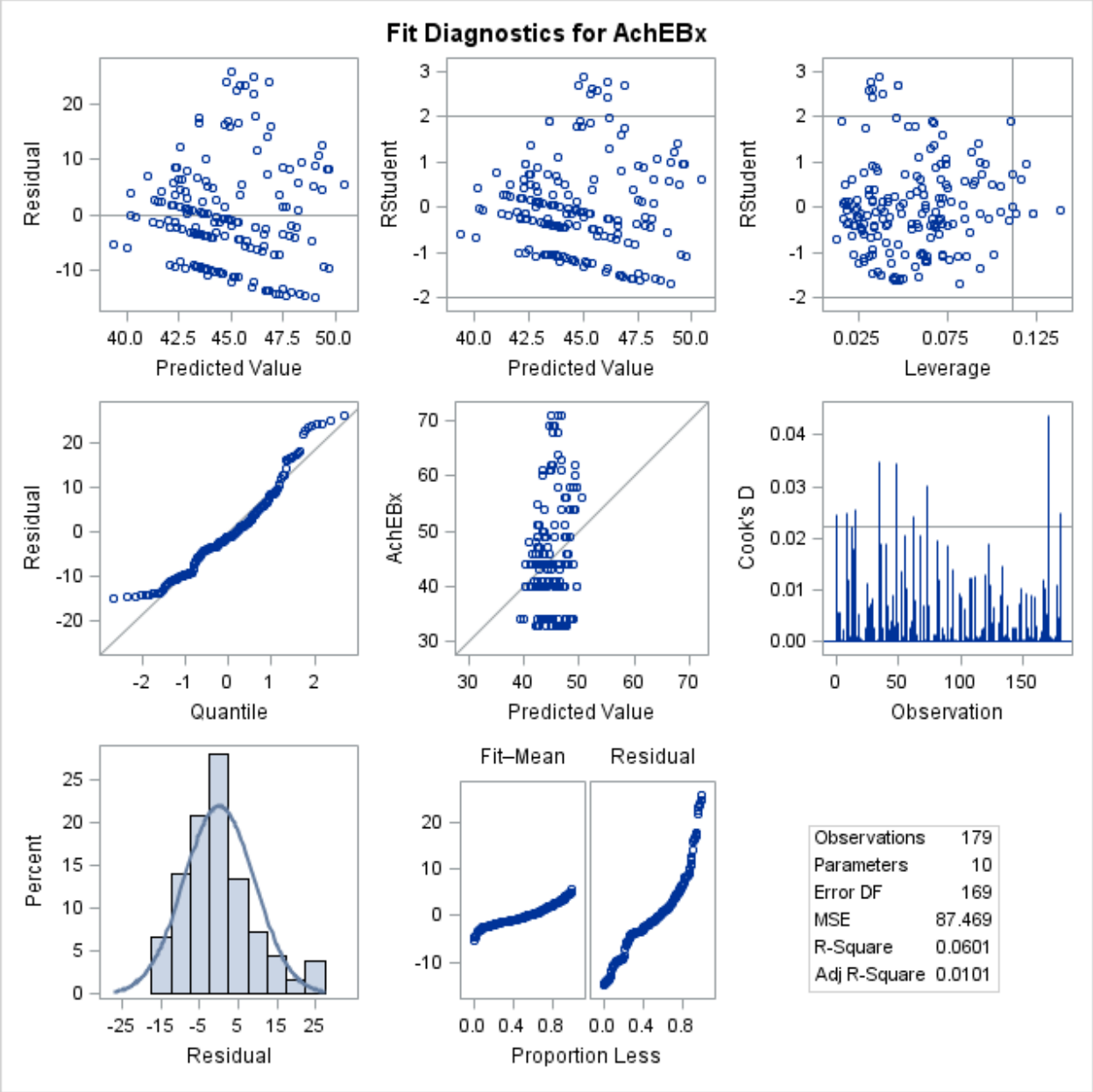
Appendix V: Coping Strategy Types as Predictors of Internalizing Behavior



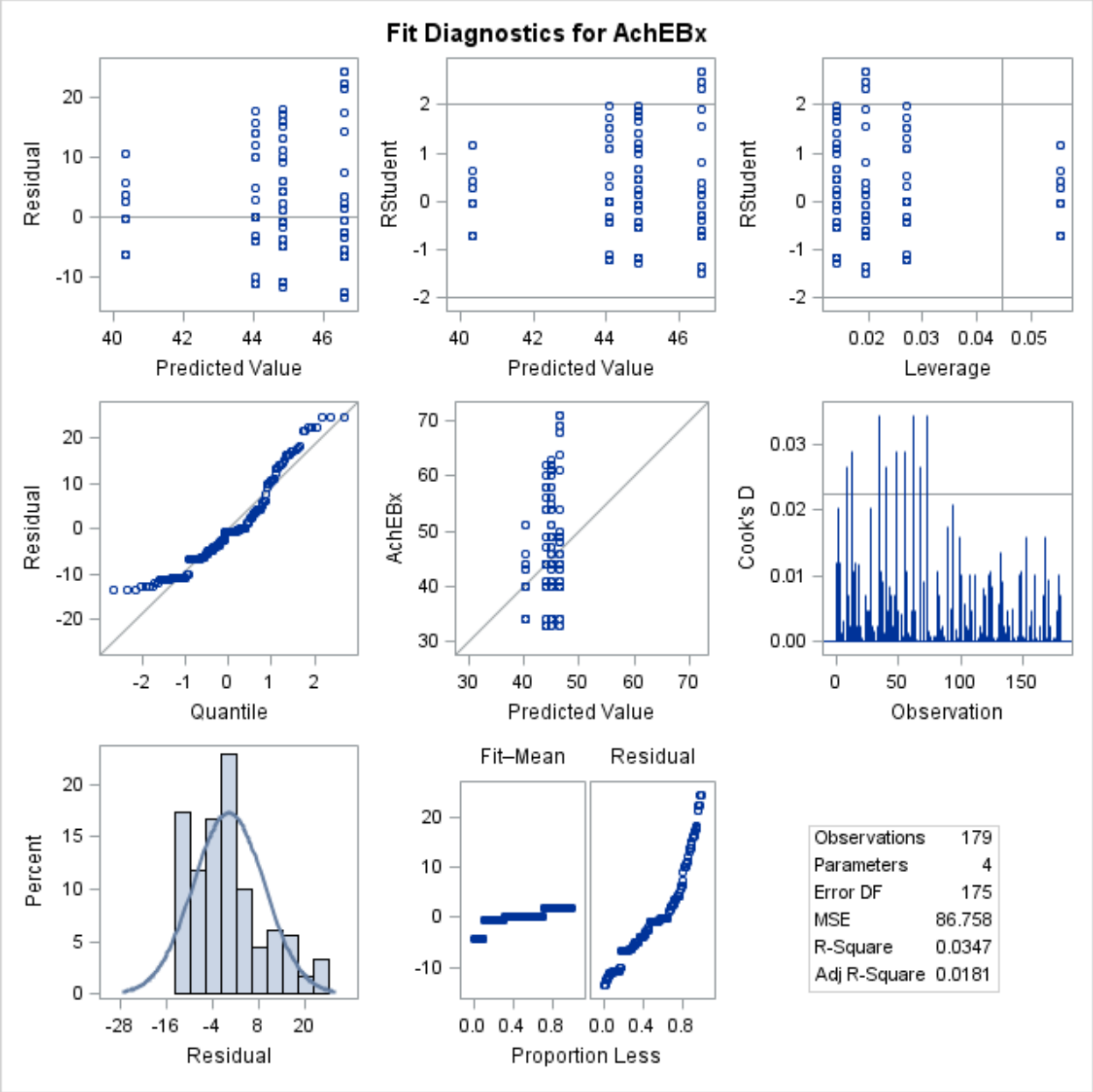
Appendix W: Coping Strategies and Adaptive Styles as Predictors of Externalizing Behavior



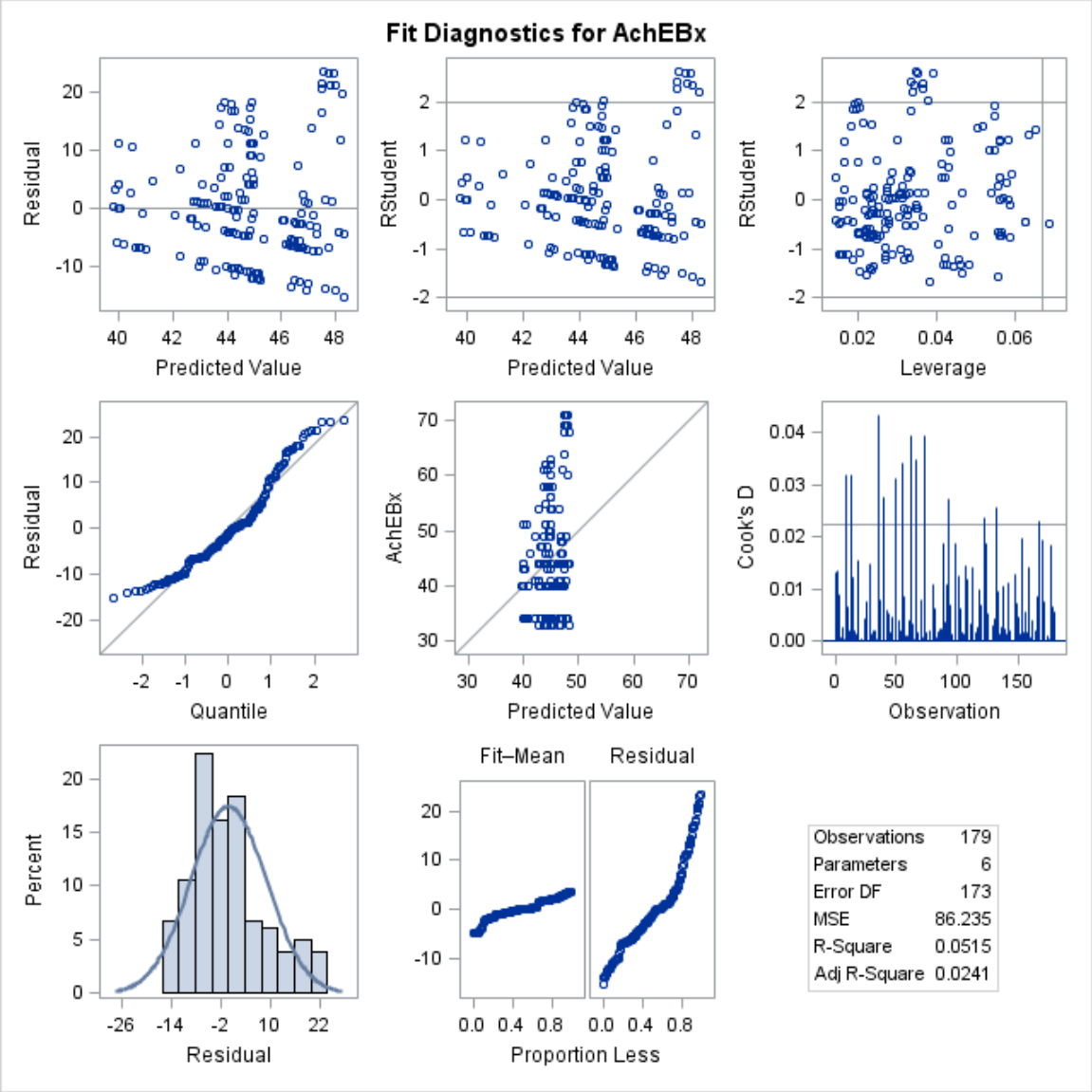
Appendix X: Coping Strategies as Predictors of Externalizing Behavior



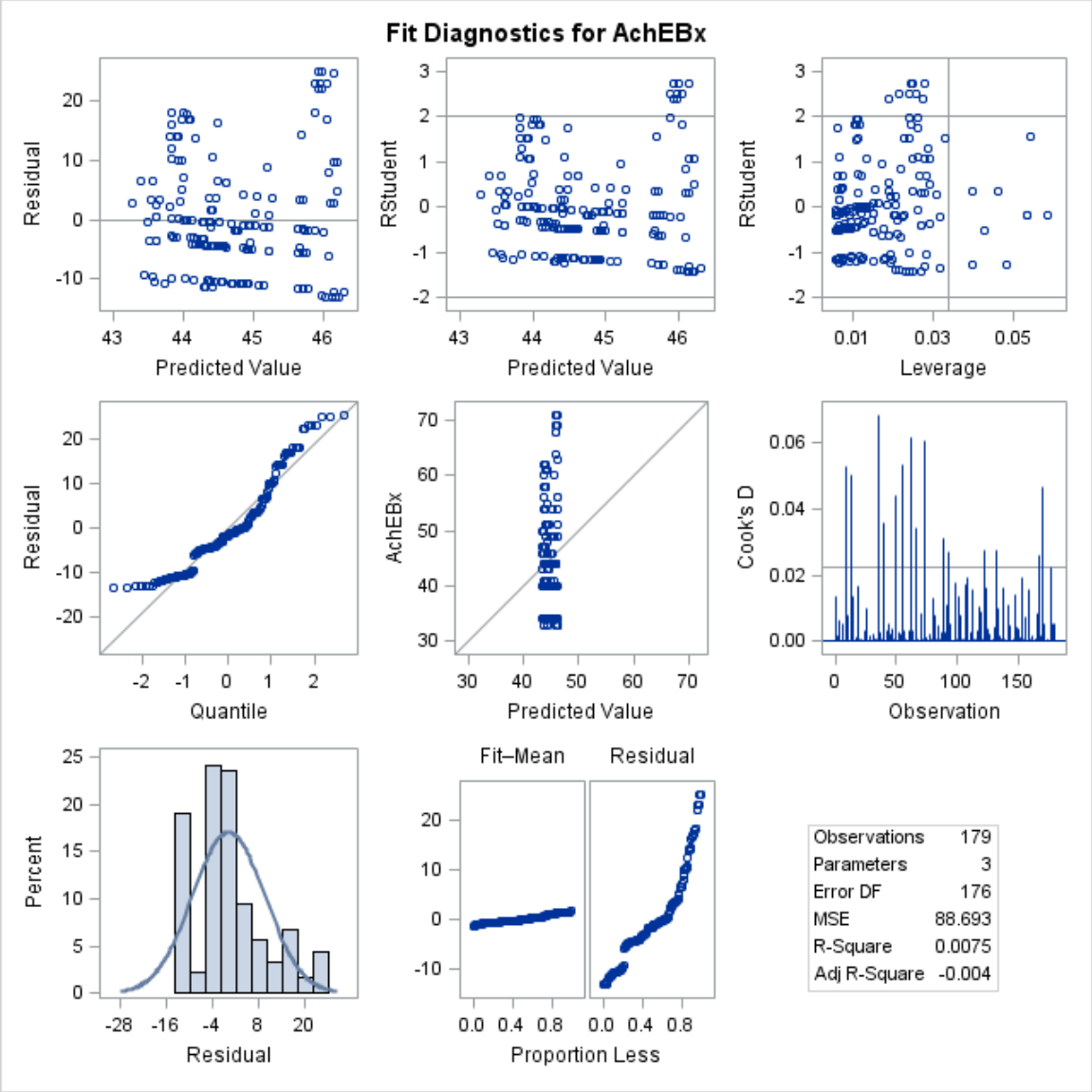
Appendix Y: Adaptive Styles as Predictors of Externalizing Behavior



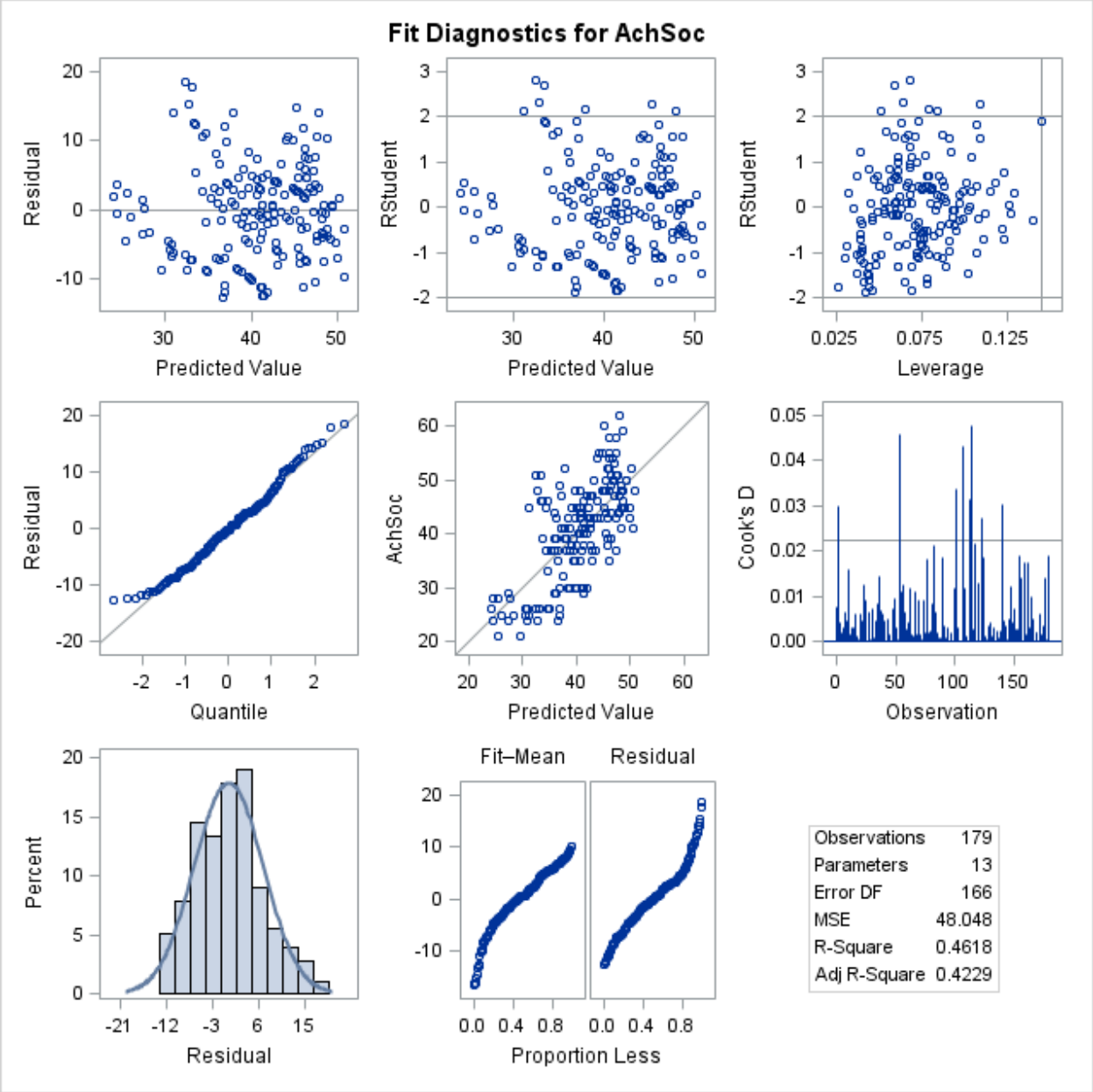
Appendix Z: Adaptive Styles and Coping Strategy Types as Predictors for Externalizing Behavior



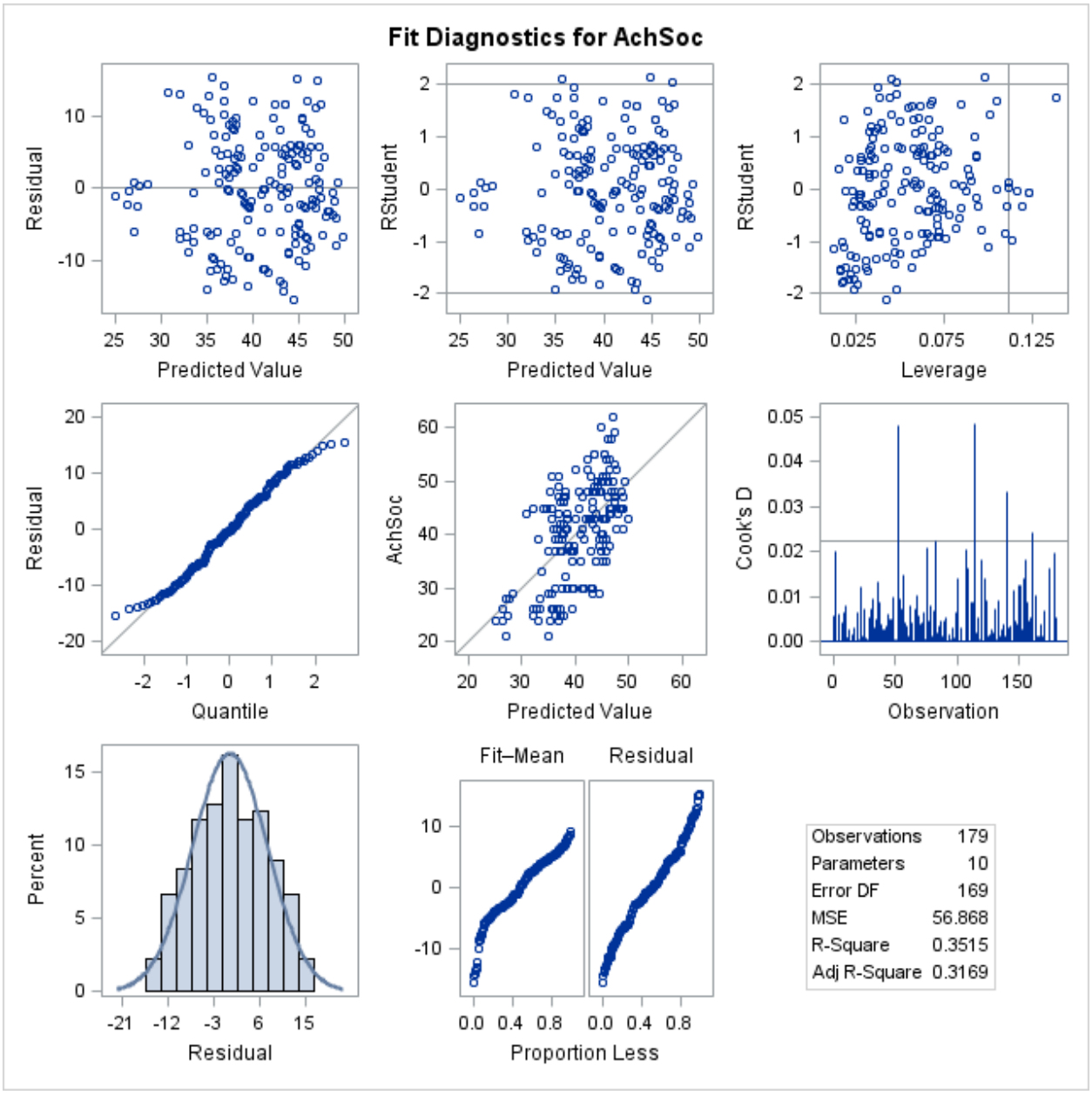
Appendix AA: Coping Strategy Types as Predictors for Externalizing Behavior



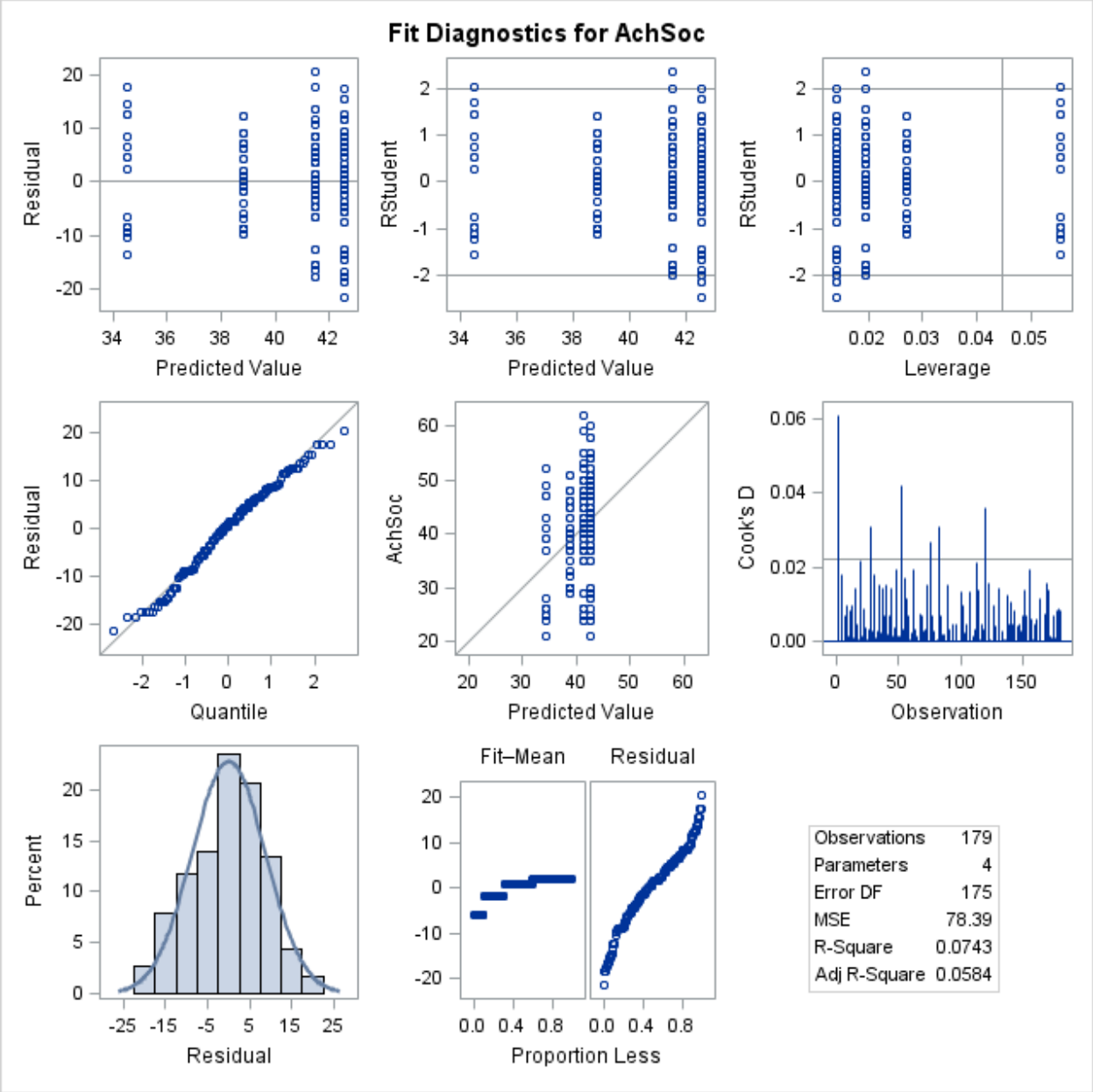
Appendix BB: Coping Strategies and Adaptive Styles as Predictors of Social Competence



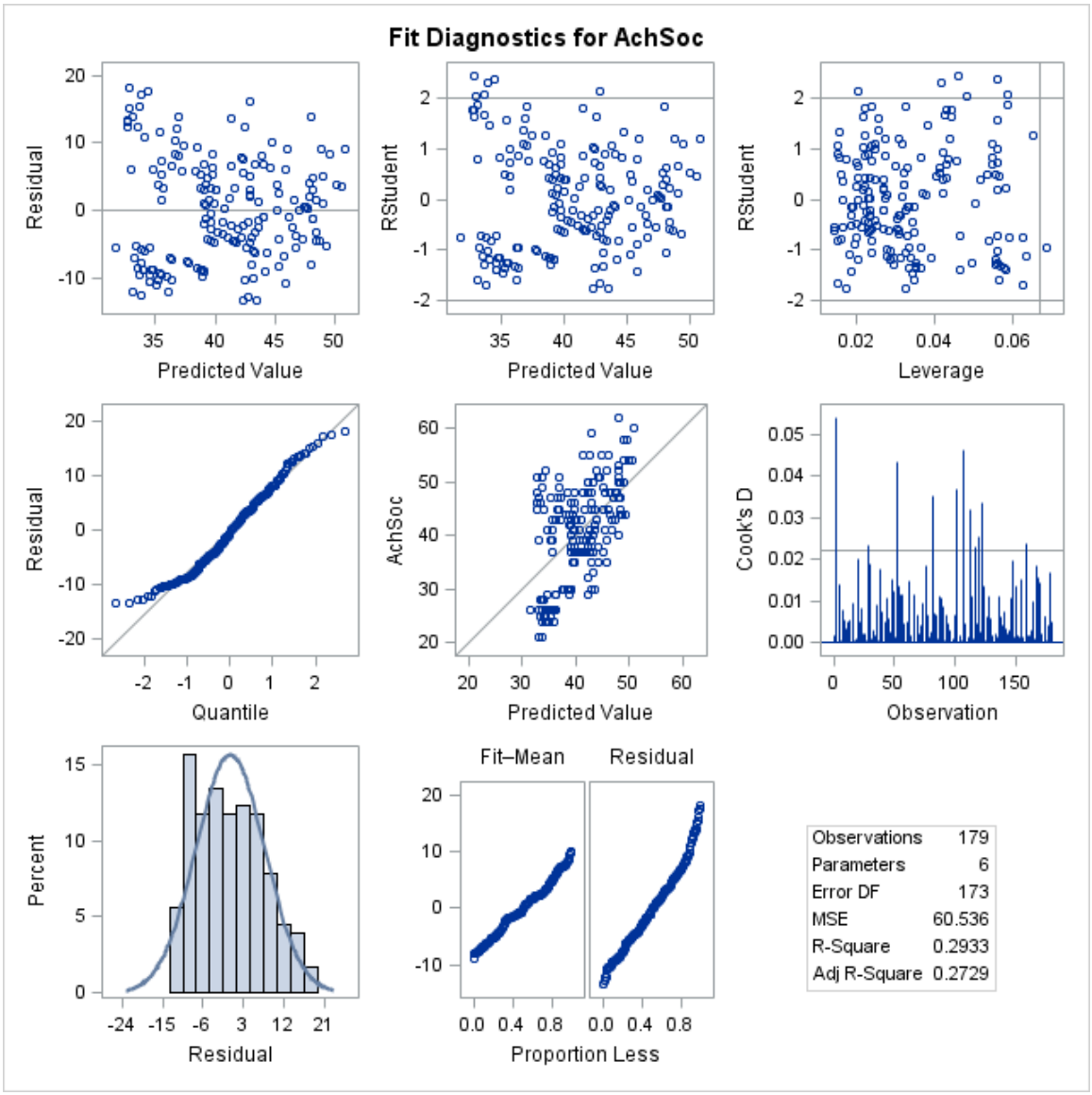
Appendix CC: Coping Strategies as Predictors of Social Competence



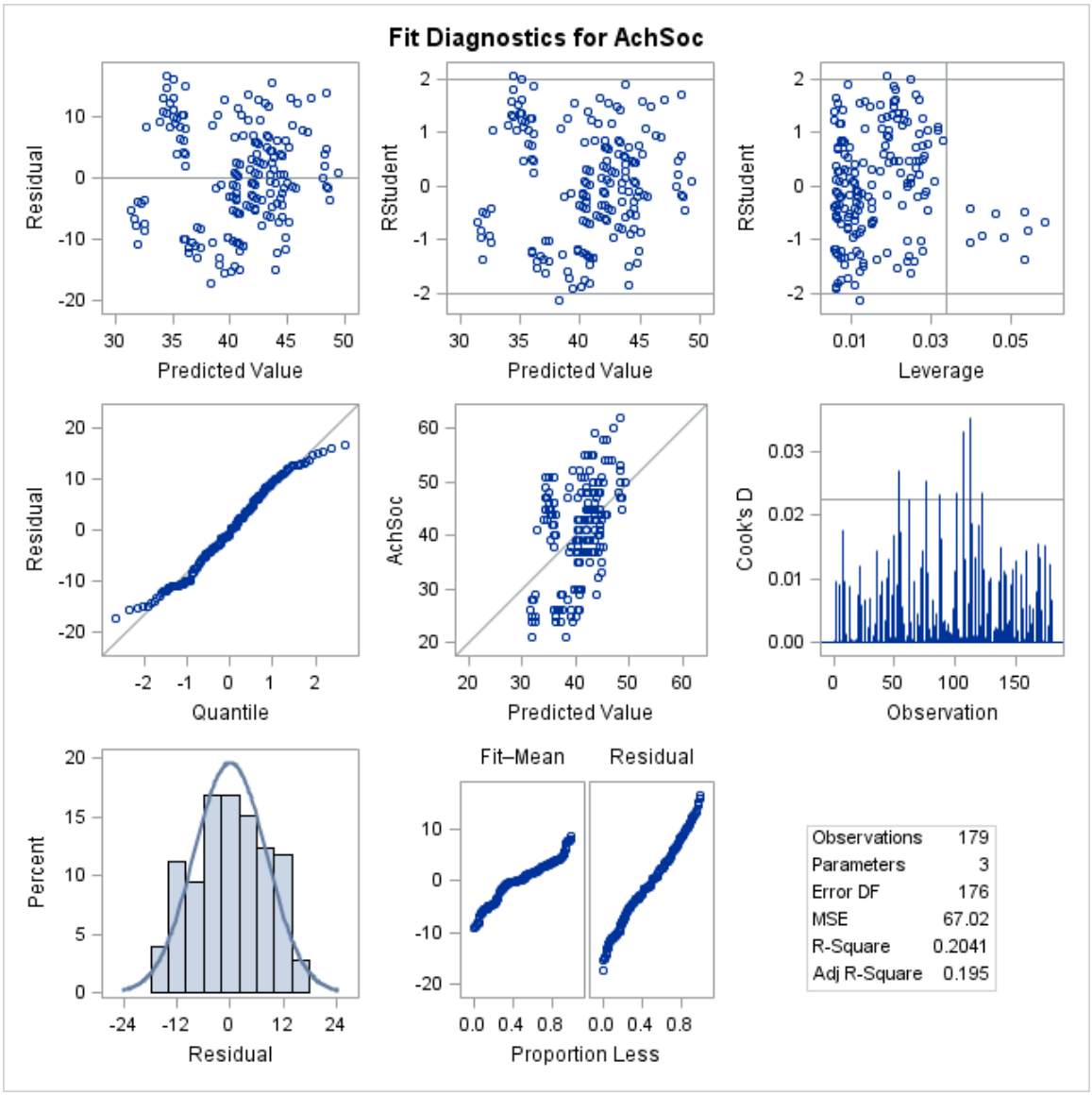
Appendix DD: Adaptive Styles as Predictors of Social Competence



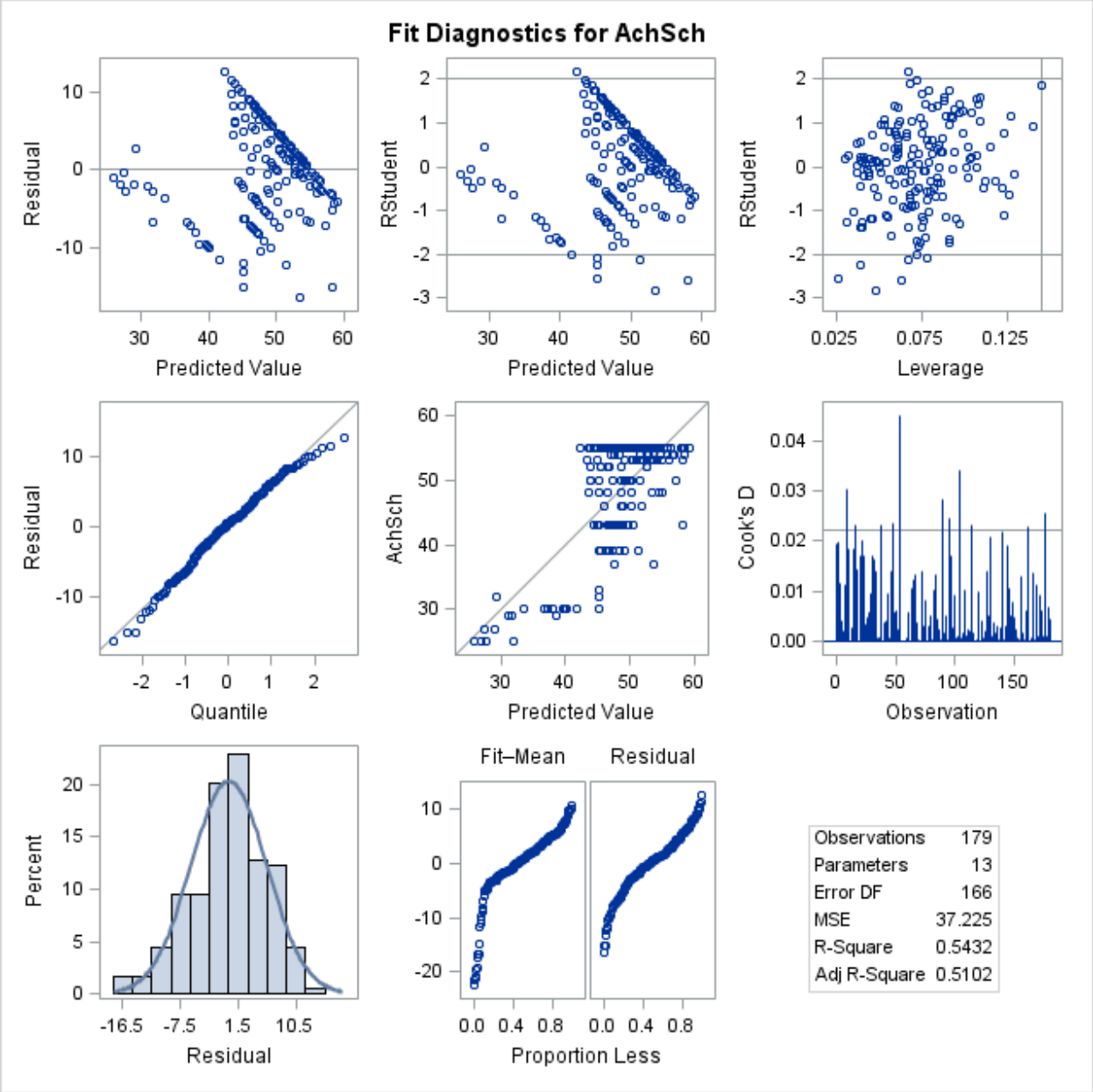
Appendix EE: Coping Strategy Types and Adaptive Styles as Predictors of Social Competence



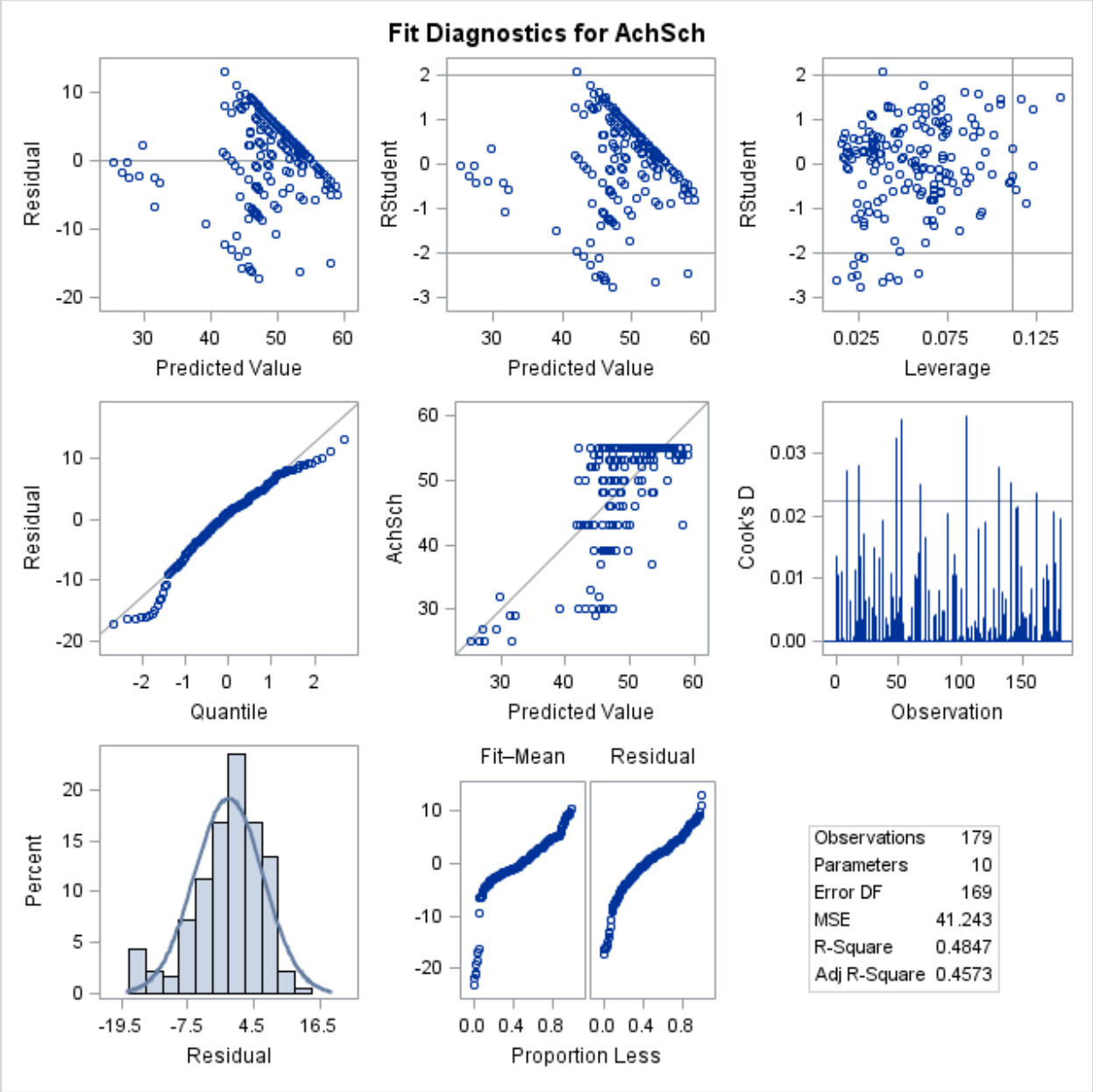
Appendix FF: Coping Strategy Types as Predictors of Social Competence



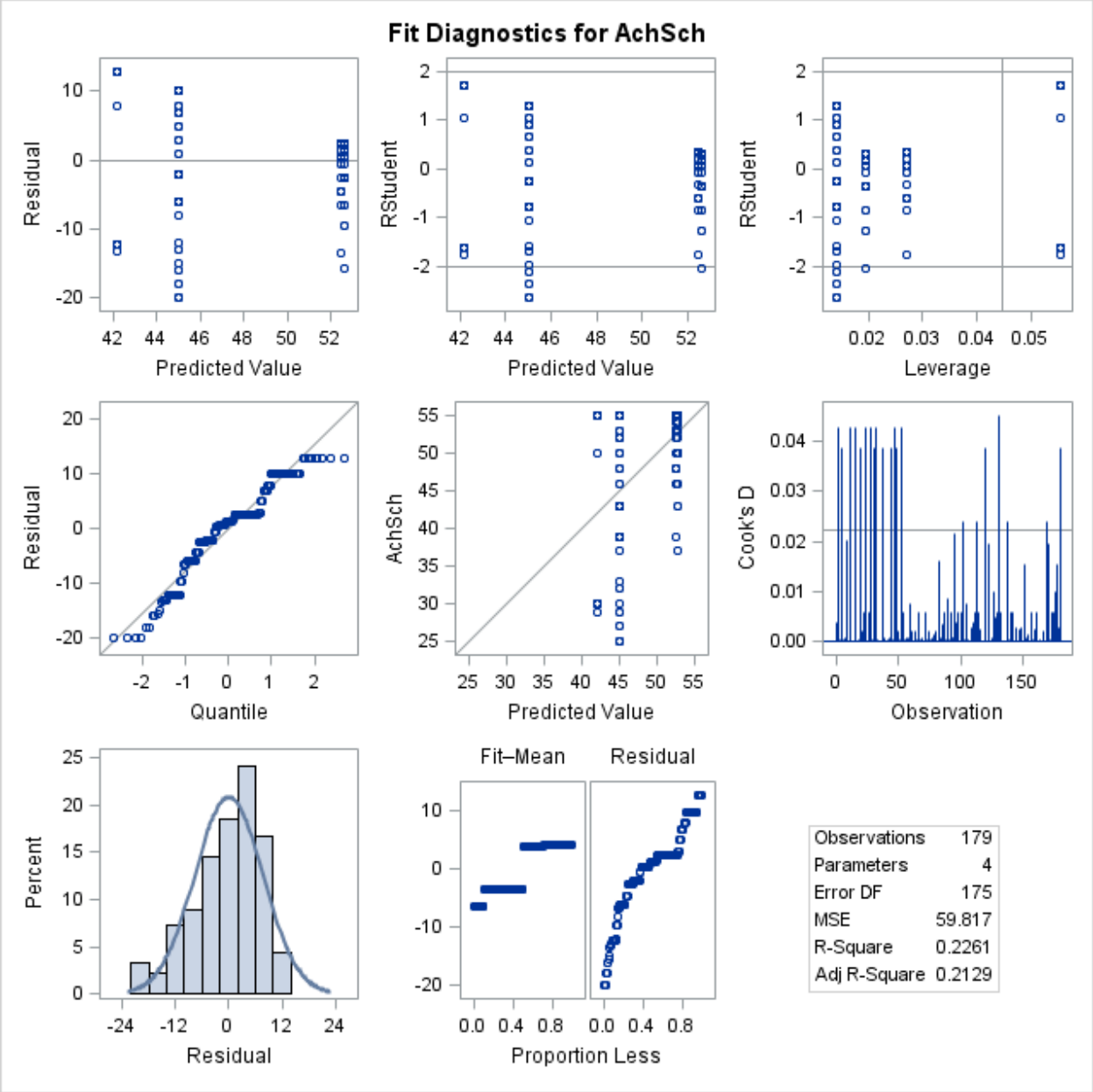
Appendix GG: Coping Strategies and Adaptive Styles as Predictors of School Scale Score



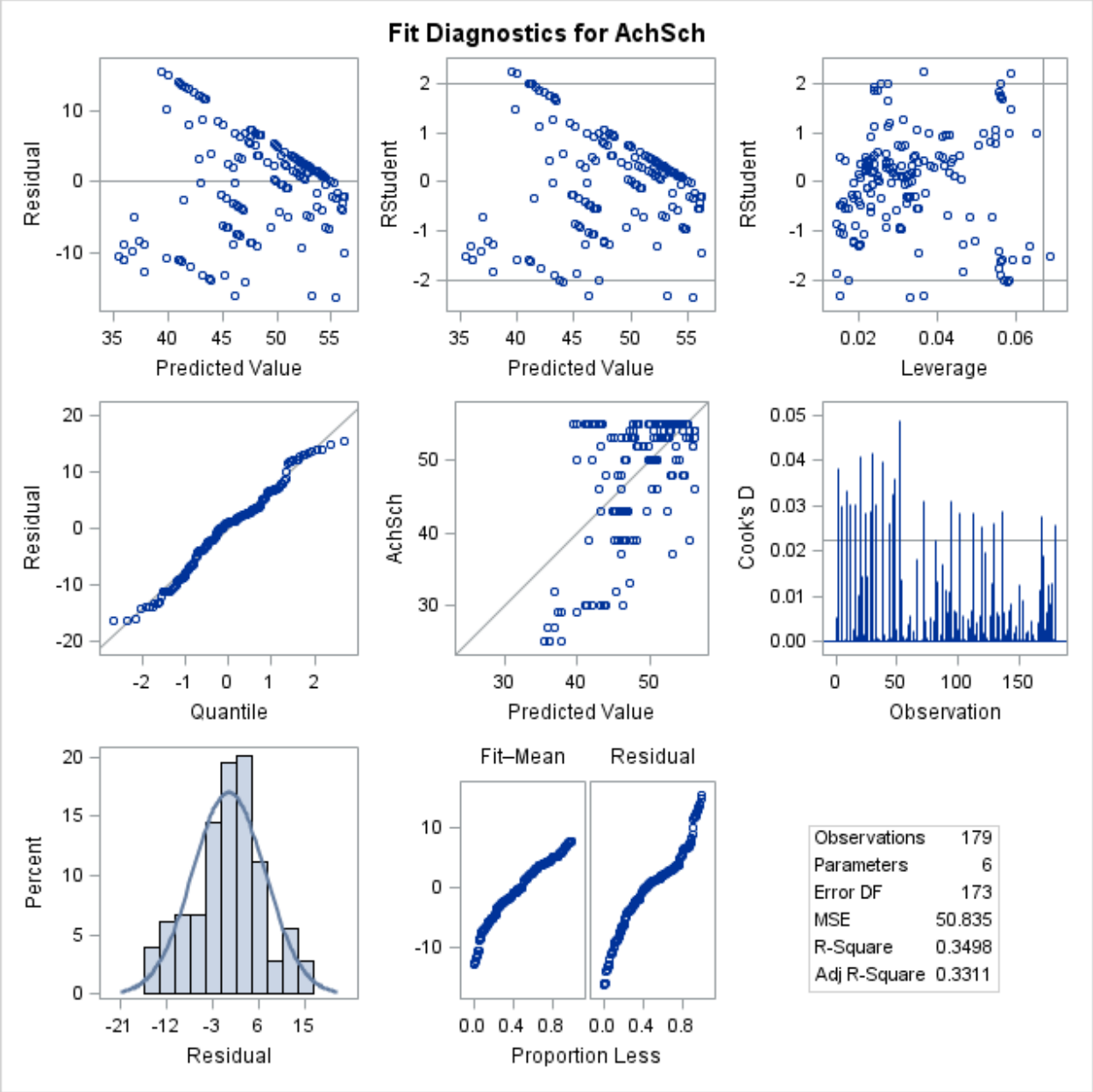
Appendix HH: Coping Strategies as Predictors of School Scale Score



Appendix II: Adaptive Styles as Predictors of School Scale Score



Appendix JJ: Adaptive Styles and Coping Strategy Types as Predictors of School Scale Score



Appendix KK: Coping Strategy Types as Predictors of School Scale Scores