

EXAMINING THE COMPREHENSIVENESS OF PSYCHOLOGICAL SERVICES
PROVIDED TO STUDENTS WITH CANCER UPON SCHOOL REENTRY

By

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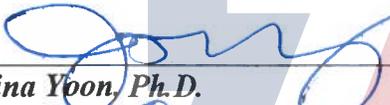
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DEDICATION

For Mom and Dad, who were my first teachers.

For my wife and son, who are my source of inspiration.

For all those affected by cancer.

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ABSTRACT

With advancements in medicine, childhood cancer survival rates have increased in recent years. Consequently, many of these children return to school post-treatment at risk for cognitive, academic, and social-emotional difficulties, as a result of cancer and its treatment effects. During the re-entry process, school psychologists have a unique skill set that would allow them to identify educational needs and create interventions to help these students readapt to school and thrive both socially and academically. However, the existing literature is scarce concerning school psychologists' specific role during the school re-entry process and the factors that may influence the provision of re-entry services.

This study concerns school psychologists and the factors that influence their likelihood of providing comprehensive re-entry services to students returning from cancer treatment. It investigates the effect of targeted cancer information on the provision of services, as well as the impact of demographic and cancer experience variables. In this study, 176 school psychologists were randomly assigned to one of two conditions: cancer information group (received facts on brain tumors and its educational impact) and no cancer information group (received no fact sheet). After being randomly assigned, participants were then directed to the following information: Demographic Questionnaire, Study Instructions and Hypothetical Case, Summary of Record Review, The Facts About Brain Tumors and Schooling (only Cancer Information group), Comprehensiveness of Psychological Reentry services for Children with Cancer Survey, and Experience with Cancer Questionnaire.

There were three predictions: 1) school psychologists receiving cancer information will endorse more comprehensive re-entry services compared to school psychologists not receiving cancer information, 2) school psychologists' demographic information will predict comprehensiveness of re-entry services, and 3) cancer knowledge and cancer experiences will predict comprehensiveness of re-entry services. The first prediction was analyzed using ANOVA, and the other predictions were analyzed separately using multiple regression.

Findings from the ANOVA suggest that cancer information results in more re-entry services, albeit with a small effect size. Moreover, the multiple regression analysis for demographic variables did not predict the provision of re-entry services, whereas cancer-experience variables did predict re-entry services. The perceived importance of cancer knowledge was the best predictor of re-entry services among cancer-experience variables. Study limitations, implications for practice, and future directions for research are discussed.

CHAPTER I

INTRODUCTION

This study concerns the comprehensiveness of psychological services provided to students with cancer when returning to the school after cancer treatment. With recent medical advancements, more pediatric cancer survivors are returning to school. Many of these students, however, encounter challenges upon school re-entry due to neurocognitive, academic, and affective/psychosocial impairments caused by cancer or its treatment. With their expertise in assessment, intervention, and consultation, school psychologists are urged to play an expanded role in the re-entry process. However, the likelihood of providing such comprehensive services is unknown. Several potential factors may limit school psychologists' ability to serve students with cancer, including a lack of cancer knowledge, time constraints, or limited roles; however, these factors have not yet been investigated in depth. As such, the reason for this study was to understand better the factors that influence the provision of re-entry services.

In this study, school psychologists were asked to rate the likelihood of providing comprehensive psychological re-entry services to a hypothetical student who recently received treatment for cancer (dependent variable). An experimental design was used to compare responses between school psychologists with and without cancer knowledge (independent variable). Additional factors examined include prior training, years of experience, work setting, caseload, satisfaction with career, role in the school, and experience with cancer. This chapter provides background information, including basic facts about pediatric cancer and its impact on schooling.

Prevalence of Pediatric Cancer

Each year, thousands of American children are diagnosed with cancer. In 2010, approximately 9,814 children in the U.S. under the age of 15 were diagnosed, with an estimated age-adjusted incidence rate of 16.4 per 100,000 persons (U.S. Department of Health and Human Services, 2010). Pediatric cancer impacts all racial categories with Whites and Hispanics being diagnosed more frequently (19.4 and 18.5 per 100,000 persons, respectively) than Blacks, Asians, and Native Americans (14.0, 14.0, and 9.0 per 100,000 persons, respectively; U.S. Department of Health and Human Services, 2010). The number of cases under age 19 years has slowly increased from 13.0 per 100,000 persons in 1975 to 17.4 per 100,000 persons in 2010 (Howlader et al., 2013). Cancer remains the second most common cause of death among American children under the age of 15 years (Jemal et al., 2008). Fortunately, with recent advancements in cancer treatment, survival rates have significantly increased for most pediatric cancers. For example, the 5-year survival rate for all childhood cancers combined increased from 58.1 percent in 1975–77 to 79.6 percent in 1996–2003 (Ries et al., 2009). Additionally, the mortality rate of children younger than 19 years with cancer decreased from 5.1 per 100,000 persons in 1975 to 2.3 per 100,000 persons in 2000, which is a 45% reduction in the past 25 years (Howlader et al., 2013). Based on these trends, it is logical to assume that more pediatric cancer survivors will be returning to school post-treatment.

Types of Pediatric Cancer

There are many types of pediatric cancers, each yielding different side effects and potential impact on schooling. The two most common pediatric cancers encountered in school are leukemia and central nervous system (CNS) tumors (e.g., brain tumor), which represent more than half of all childhood cancers.

Leukemia. Leukemia accounted for approximately one-third of cancer diagnoses among children under age 15 in 2010 (U.S. Department of Health and Human Services, 2010). The two main types of childhood leukemia (blood cancer) are acute lymphoblastic leukemia (ALL), accounting for three-fourths of leukemias, and acute myeloid leukemia (AML), accounting for much of the remainder of leukemia cases (Hewitt, Weiner, Simone, 2003). ALL is an aggressive cancer caused by too many lymphoblasts (immature white blood cells) in the blood and bone marrow, resulting in recurrent infections, fatigue, and anemia (Dixon-Woods, Young, & Heney, 2005). ALL is most often diagnosed between ages 2 and 6, but it can be diagnosed in adolescence and adulthood. In the U.S., it is more common among White males (Hewitt et al., 2003). As the second-most common type of leukemia, AML attacks the bone marrow and lymph nodes with an overabundance of abnormal cells. These cancer cells circulate throughout the bloodstream and disrupt the normal functioning of organs causing frequent infections, anemia, swollen glands, and poor appetite. AML is quite rare among children, however, with only about 500 cases diagnosed each year.

Brain and CNS tumors. The second largest category of childhood cancers is brain and CNS tumors, making up approximately 21 percent of all cancer diagnoses among children under age 15 (U.S. Department of Health and Human Services, 2010). CNS tumors are masses of abnormal cells that have grown out of control. Most of the CNS tumors in children and adolescents are astrocytoma, which originates from star-shaped brain cells in the cerebrum. Medulloblastomas, brain stem gliomas, ependymomas, and optic nerve gliomas are other common CNS tumors found in children.

CNS tumors typically occur before age seven years, but may also appear throughout the lifespan (Hewitt et al., 2003).

Treatment for Pediatric Cancer

Understanding cancer treatment is essential because of the unique side effects and risks that different treatment protocols impose on schooling. It is often the deleterious effects of treatment rather than cancer itself that cause school problems among students with cancer. The best cancer treatment is determined by a team of doctors and largely depends on variables such as the type and severity (stage) of the child's cancer, as well as individual factors like age and gender. The primary treatment options include surgery, radiation, and chemotherapy, and they are often used in conjunction.

Surgery. Surgery is typically the most effective method for treating tumors that have not yet spread. Fortunately, advancements in surgical tools have reduced the invasiveness of surgery, allowing minimal damage to areas surrounding the tumor. This advancement is particularly important when removing brain tumors, where the damage to healthy brain tissue can result in cognitive impairment. When cancer is isolated in one part of the body, surgery is usually effective in removing all cancer (known as curative surgery). If the tumor is metastatic (in the process of spreading throughout the body), surgery may still be helpful in reducing the size of the tumor and limiting the spread of cancer (known as debulking surgery). However, additional cancer treatment modalities are usually recommended.

Radiation Therapy. Radiation therapy uses special equipment to deliver high doses of radiation preventing cancer's spread and growth. However, radiation therapy can cause irreparable damage to nearby healthy tissue and thus must be used with caution.

Different forms of radiation may be prescribed. External radiation targets cancer cells from outside the body using high-energy rays. Treatment is typically continued over many weeks at a hospital or treatment facility. There is also internal radiation (brachytherapy) that uses an implanted device to release radiation to the cancerous area. Internal radiation is generally viewed as less likely to damage healthy tissue due to limited distances internal radiation can travel. The last type of radiation treatment is systemic radiation, wherein radioactive drugs are delivered orally or intravenously. The drug travels throughout the body collecting where the cancer is.

The frequency and length of radiation treatment may differ by individual. Most patients prescribed with external radiation receive daily treatments over several weeks, whereas internal radiation can be implanted temporarily (1 to 7 days) or permanently. In children under the age of 3 years, radiation is often discouraged because of its potentially damaging effects on the immature, rapidly developing brain (American Cancer Society, 2008). Especially relevant to schoolchildren, side effects associated with radiation treatment include skin changes, tiredness (fatigue), diarrhea, or eating difficulty. More concerning, however, is the neurocognitive complications that result from radiation therapy (see **Treatment Effects on Normal Development** below).

Chemotherapy. Whereas surgery and radiation therapy typically target specific cancer cells, chemotherapy works throughout the entire body. Chemotherapy can be useful in killing cancer cells that have spread throughout the body far away from the original tumor. Many chemotherapy drugs are available for cancer treatment, and they are often used in combination. These drugs are mostly delivered intravenously, but may also be dispensed via other routes (e.g., oral, intrathecal, intra-arterial). Chemotherapy is

often used in conjunction with surgery and radiation. For example, chemotherapy may be used to reduce tumor size before surgery or radiation (known as neoadjuvant therapy), or it may be used after surgery or radiation therapy to destroy remaining cancer cells (adjuvant therapy).

Although chemotherapy is often considered less dangerous than radiation therapy, it can still damage normal cells in the bone marrow, hair follicles, cells in the mouth, digestive tract, and reproductive system. Resulting complications include anemia, fatigue, hair loss, bruising, nausea, diarrhea, nerve and muscle problems, skin and nail changes, and weight gain. Brain damage is also at risk, especially when chemotherapy is injected into the cerebral spinal fluid (CSF) surrounding the brain and spinal cord (i.e., intrathecal chemotherapy), which is used to treat CNS malignancies or cancers that have spread in the CSF. For pediatric cancer patients, chemotherapy administration is commonly delivered for 2-3 years (Armstrong & Briery, 2004), requiring frequent visits to the hospital in the first year of treatment followed by more outpatient care. Eventually, children may feel healthy enough to return to school even during the later stages of treatment.

Treatment Effects on Normal Development

Due to the hazardous effects of cancer treatment (e.g., surgery, chemotherapy, and radiation therapy), on normal functioning cells, childhood cancer survivors are at risk for cognitive deficits, poor academic outcomes, and social and emotional concerns.

Disruption in the normal development of neurocognitive functioning may not surface until years after treatment, a phenomenon known as "late effects." The severity and extent of cognitive decline depend on many factors, including the type of cancer (including

location if it is a tumor), the type of cancer treatment prescribed, and individual factors, such as age and gender (Butler & Haser, 2006). For example, many studies indicate that children with brain tumors risk more significant cognitive deficits than children with leukemia (Butler & Haser, 2006; Maddrey, 2005; Waber, 2012; Zeltzer, Lu, & Leisenring, 2009). Many researchers have attributed these effects to the use of radiation treatment to the brain and other parts of the CNS (i.e., Cranial Radiation Therapy [CRT]), which damages healthy brain cells (e.g., white matter) vital for normal cognitive functioning (Butler & Haser, 2006). However, Carpentieri et al. (2003) found that even surgery alone, without the use of CRT, can also yield cognitive deficits. In their study, they monitored 77 school-age children with brain tumors who were treated with surgery only and found significant deficits in motor output, verbal memory, and visual-spatial organization compared to population norms. Similarly, Beebe et al., (2005) assessed 103 children after brain tumor surgery and found that they were at a higher risk for intellectual functioning, academic functioning, motor functioning, and adaptive functioning deficits compared to their healthy peers.

Chemotherapy is also associated with neurocognitive risks, albeit with milder effects (Moleski, 2000). Earlier studies had initially concluded that chemotherapy had no adverse effects on cognitive functioning; however, more recent studies have found traces of neurotoxicity, as evidenced by modest declines in arithmetic, and visual motor integration in some samples (Brown et al., 1998; Epsy et al., 2001). As is true for CRT, a higher dosage of chemo drugs also correlates with greater impairment (Butler, 2006).

Other factors contributing to neuropsychological dysfunction are age and gender. Generally, children who are diagnosed or treated at a younger age are at a higher risk for

cognitive impairment (Butler & Haser, 2006; Holmqvist et al., 2010). For example, one study found that children who received CRT treatment in early childhood demonstrated more attention deficits than children who received CRT in late childhood (Lockwood et al., 1999). Furthermore, Mulhern et al. (2004) reviewed findings from 12 studies and concluded that children treated at a younger age were at higher risk for declines in IQ over time. Some theorize that the vulnerability of the developing brain may explain the poorer outcomes in younger children. Although not well understood, being female is also a major risk factor. Harila-Saari et al. (2007) collected academic data on 371 leukemia patients under age 16 and discovered that only the females with leukemia diagnosed before age seven had lower grades compared to controls. These findings confirm prior studies that found similar age and gender effects (Leung et al., 2000; von der Weid et al., 2003).

Schooling Options During Treatment

Hospital-based Schooling. When children require extended stays or repeated visits to the hospital, their regular school routine is inevitably disrupted. During this time, hospital-based schooling is likely the best method for continuing education. Many large children's hospitals have schools staffed with certified teachers and offer enrichment programs and support services offered in local schools. For example, The University of Texas MD Anderson Cancer Center provides curriculum for both inpatients and outpatients (Pre-K through 12; www.mdanderson.org). Their program also offers a Creative Arts Program, vocational counseling, and college entrance preparation. Similarly, places like University of North Carolina Hospital and Seattle's Children's Hospital offer comprehensive academic services for students, including instruction based

on the child's local school, bed-side tutoring, and academic assessments (www.chccs.org/unchs; www.seattlechildrens.org). Many of these hospital-based schools even offer identification for special education services. Although hospital-based schooling is beneficial for those students with frequent hospital visits, it is not always favorable among students. For instance, interviews of adolescents with cancer revealed concerns that hospital-based schooling was not challenging enough, and some felt disappointed they were missing out on normal school activities (Searle, Askins, & Bleyer, 2003).

Homebound Schooling. Another option is homebound schooling typically offered through the student's school district. Often home-based schooling is utilized during the transition period when children have completed initial cancer treatments and are recovering from its acute effects. For example, in one study, some children requested homeschooling to recover from hair loss or difficulty walking (Searle et al., 2003). The duration of homebound schooling may vary by state, but often instruction is limited in hours per week. Though this option may be favorable among children not quite ready to attend their local school, some students have expressed dissatisfaction with the quality of instruction, as well as the lack of extracurricular and social gatherings (Searle et al., 2003).

Community Schooling. Many children with cancer receive treatment in the outpatient setting, allowing them to stay in their local school. The benefits of returning to community-based schooling can be plentiful: Children return to their normal routine and regain a sense of normalcy (Askins & Moore, 2008; Bessell, 2001; Katz, Varni, Rubenstein, Blew, & Hubert, 1992); they receive social support from their closest friends,

classmates, and teachers (Hildenbrand et al., 2001; Searle et al., 2003); and they have full access to their classroom and schools resources, which is unmatched by hospital-based and home-based schooling (Hermann et al., 2011). Indeed, qualitative studies have documented students' desire to return to school following cancer treatment (Bessell, 2001).

Despite these benefits, there are still fears associated with returning to the community-school environment. Children with cancer, along with their parents, have expressed concerns over peer acceptance and school performance (Anclair, Hoven, Lannering, & Boman, 2009; Bessell, 2001; Gartin & Murdock, 2009; Kurtz & Abrams, 2011). For example, in one qualitative study, Gartin & Murdock (2009) noted that some childhood cancer survivors experienced awkwardness among teachers and friends who appeared uncertain about how to act around them. The ambivalence may be attributed to misconceptions about the child's condition. Moreover, Hildenbrand and colleagues (2011) revealed that some children in their study had experienced bullying due to their physical transformation (e.g., scars from surgery, hair loss). This mistreatment may be a direct result of naiveté on the part of other children.

In addition to concerns over social interaction, there are also reported anxieties over academic performance. Anclair et al. (2009) surveyed 82 parents regarding their fears associated with their child's cancer diagnosis and discovered that over one-half of the parents expressed high levels of fear regarding their child's school performance. Poor school performance usually results from late effects (Maddrey et al., 2005; Waber et al., 2012). These cognitive late-effects, which can surface years after treatment, make learning burdensome for children. Consequently, difficulty in school may lead to school

aversion, especially when adequate accommodations to appropriately address learning needs are withheld.

Educational Impact

Intellectual Functioning. Although there is no standard definition of intelligence, many consider it to be a general cognitive ability that predicts academic achievement and life success (Gottfredson; 1997; Watkins, Glutting, Lei, 2007). Unfortunately, children with cancer are at high risk for intellectual deficits, as measured by IQ tests, especially when exposed to invasive cancer treatments like CRT. Robinson and colleagues (2010) conducted a meta-analysis on the neurocognitive sequelae of childhood cancer survivors of brain tumors. In their analysis, they included 39 studies (42 samples), which yielded a total sample of 1,318 children (mean age of 11.1 at the time of testing) treated for brain tumors. The effect size for Full-Scale IQ (FSIQ) was large ($g = -0.83$) when compared to normative data, suggesting that brain tumors and their treatment have a strong negative impact on IQ. Moreover, the effect sizes for Verbal IQ (VIQ) and Non-Verbal IQ (NVIQ) were medium ($g = -0.74$) and large ($g = -0.88$), respectively. Similarly, Campbell et al., (2007) performed a meta-analysis on the neurocognitive sequelae of children being treated for leukemia, including 28 empirical studies published between 1980 and 2003. In comparing leukemia patients to their controls (i.e., normative sample or comparison group), the effect size for FSIQ was medium ($g = -0.71$), as well as the effect sizes for Verbal IQ ($g = -0.58$) and Performance IQ (PIQ; $g = -0.66$), which is similar to NVIQ. These findings suggest a decline in IQ among children with brain tumors and leukemia, with the former yielding worse outcomes.

Attention and Memory. Attention and memory are two critical skills routinely

involved in learning. These domains are significantly affected by cancer and its treatment. Findings from Robinson et al.'s (2010) meta-analysis reveal large effect sizes for both attention ($g = -1.22$) and memory ($g = -1.14$) among children treated for brain tumors. Regarding those treated for leukemia, the impact was much less. Campbell et al.'s (2007) meta-analysis yielded medium effect sizes for attention ($g = -0.57$) and memory ($g = -0.62$). These results suggest that children with cancer may experience difficulty concentrating and remembering instruction in the classroom; however, research directly studying attention deficits in the classroom is scarce.

Psychomotor Skills. Psychomotor skills involve the coordination of physical movement to achieve a goal, which is especially important in young children among whom physical movement especially facilitates learning and exploration. For children treated with brain tumors, this cognitive domain takes a significant hit. Robinson et al.'s (2010) meta-analysis reveal a large effect size ($g = -1.43$) in this area, which is the largest cognitive deficit area for children treated with brain tumors. In contrast, children treated for leukemia have only small deficits in psychomotor skills ($g = -0.34$; Campbell et al., 2007). The large difference in effect sizes between brain tumor patients and leukemia patients is likely due to the treatment involved. Brain tumor patients typically require CRT, which exposes the brain to harmful radiation, whereas leukemia patients typically do not. CRT is only required in a small percentage of leukemia patients that do not respond to less aggressive treatments.

Academic Skills. Academic skills, such as reading, math, and spelling, are moderately impacted in children treated for cancer. Robinson et al.'s (2010) meta-analysis on children treated for brain tumors reveals a small effect size for reading ($g = -0.47$) and

medium effect sizes for both math ($g = -0.60$) and spelling ($g = -0.63$). Similarly, Campbell et al.'s (2007) meta-analysis on children treated for leukemia yielded similar effect sizes (reading, $g = -0.57$, math, $g = -0.60$, spelling, $g = -0.42$). Although these effect sizes appear smaller than other areas of cognitive functioning (e.g., IQ, attention, and memory), especially for children treated for brain tumors, Prentice and Miller (1992) suggest that smaller effect sizes do not automatically preclude clinical importance. Robinson et al. (2010) note that these effect sizes ($g = -0.45$ to -0.63) roughly correspond to achievement scores of 90.5-93.3, which suggests that children with cancer may find academic tasks more challenging than their healthy peers.

Affective and Psychosocial Functioning. It is not surprising that some children with cancer experience psychosocial difficulties. Hildenbrand et al. (2011) identified cancer-related stressors by interviewing 15 child-caregiver dyads. The four primary sources of stress yielded from the child and parent responses were (a) dealing with side effects of treatment (e.g., hair loss), (b) experiencing emotional distress (e.g., feeling scared or nervous), (c) adapting to changes in daily routine (e.g., missing home/friends/family), and (d) maintaining relationships with friends and classmates. These stressors can impact a child's school experience. For example, difficulties in coping with physical transformation resulting from cancer treatment oftentimes leads to feelings of isolation and fear in school (Abrams, Hazen, & Penson, 2006; Bessell et al., 2001, Prevatt, Heffer, & Lowe, 2000; Vance & Eiser, 2002), bullying victimization (Hildenbrand et al., 2011; Vance, Eiser, & Horne, 2004), and a decline in the quality of peer relationships (Barrera, Shaw, Speechley, Maunsell, & Pogany, 2005; Gartin & Murdock, 2009).

Additionally, in a review of 19 studies on psychosocial functioning, Wakefield et al. (2010) found that students completing cancer treatment reported the most significant decline in physical functioning and liveliness, and were more likely to identify themselves as being more ill and tired compared to their classmates. When compared to their healthy peers, these students reported poorer outcomes regarding anxiety, depression, social competence, self-esteem, emotional stability, and externalizing and internalizing behaviors (Wakefield et al., 2010); however, these effects were generally small. Although students treated for cancer might evidence more emotional and cognitive complaints compared to their typical peers, it is important to note that most students treated for cancer have no significant psychosocial complaints (Wolfe-Christensen et al., 2009). Many childhood cancer survivors go on to report positive psychological health and quality of life as adults (Zeltzer et al., 2008).

Physical Health. In addition to cognitive and academic concerns, students completing cancer treatment are likely to experience a range of physical impairments (e.g., visual or auditory deficits, ambulatory difficulty, fatigue) that may affect their ability to participate in classroom and school activities successfully. For example, they may experience stints of limited physical strength and vitality, which in turn limits academic engagement. As mentioned, physical changes during treatment, such as weight gain, hair loss, and visible scars may lead to concerns over interacting with peers (Glasson, 1995; Vance, Eiser, & Horne, 2004).

School Absenteeism. School attendance is critical for academic success. Research has shown that absenteeism is linked with poor grades, high dropout rates, delinquency, and psychosocial problems (Kearney, 2008). Unfortunately, on average

pediatric cancer patients miss several days of school each year. In one study, pediatric cancer patients missed an average of 31.29 days of school during their initial treatment (Noll, Gartstein, Vannatta, Correll, Bukowski, & Davies, 1999). Moore, Kaffenberger, Goldbrg, Oh, and Hudspeth (2009) found that in their sample of pediatric cancer patients, the average number of days missed in the first, second, and third years of diagnosis was 83, 58, and 32, respectively. A more recent study found that childhood cancer survivors missed twice as many days of school as compared to their healthy peers (French et al., 2013). Even when accounting for hospital visits, these students still missed five more days than their classmates. Absenteeism may worsen existing academic problems, forcing students to fall further behind. It may also make peer relationships harder to maintain, exacerbating feelings of isolation at school. Reasons for school absences include illness, side effects of treatments, and hospital visits (Sullivan, Fulmer, & Zigmond, 2001). One important finding is that parental perception of their child's vulnerability or to their child's perceived emotional and social functioning did not predict absenteeism; instead, the child's perception of his/her physical functioning was predictive of absenteeism.

In sum, there are potentially many educational challenges among children following cancer treatment, highlighting the importance of carefully planned school reintegration. School psychologists are among those in the school that can play a vital role in the re-entry process. In theory, they are the professionals who possess the necessary skills to coordinate reentry and ensure the student is receiving essential support to navigate the school environment and succeed in the classroom. However, the empirical literature is sparse regarding the extent to which school psychologists are likely to serve in this new role.

Purpose of the Study

This study focuses on school psychologists' attitude toward the provision of re-entry services for students with cancer. With the recent push in the literature for school psychologists to provide a wide range of re-entry services to students with cancer, this study examined, using a hypothetical case of a student with a brain tumor, the array of services that may be used. The choice to focus on a hypothetical student with a brain tumor, as opposed to another type of cancer, was made because brain tumor treatment has had the greatest impact on educational outcomes in the literature. Moreover, this study examined the factors that shape service provisions, including general knowledge of cancer, prior training, professional experience, work setting, and caseload, as well as demographic variables, such as age and gender.

This study proposes the following hypotheses: a) school psychologists receiving cancer information will endorse more comprehensive re-entry services compared to school psychologists not receiving cancer information, b) school psychologists' demographic information will predict comprehensiveness of re-entry services, and c) cancer knowledge and cancer experiences will predict comprehensiveness of re-entry services.

CHAPTER 2

REVIEW OF THE LITERATURE

Chapter 2 provides a literature review on the components of school reintegration, the types of school re-entry programs, and the utilization of school psychologists during the reintegration process.

Reintegration Programs

Despite successful cancer treatment, many students with cancer continue to experience treatment side effects, chronic health problems, cognitive deficiencies, and social and emotional problems upon return to school (Armstrong & Horn, 1995; Askins & Moore, 2008; Campbell et al., 2007; Robinson et al., 2011; Sandeberg, Johansson, Bjork & Wettergren, 2008; Vance & Eiser, 2002). This fact highlights the importance of carefully planned reintegration services (e.g., identification of learning problems, implementation of interventions, and continuous monitoring and support). This section introduces the important participants and components in school reintegration and then reviews re-entry programs that have been reported in the literature.

Stakeholders of School Reintegration

The student with cancer. It is intuitively obvious that the most important stakeholder during the re-entry process is the student with cancer. Often cancer patients are eager to return to school where they can be with friends, have access to a stimulating learning environment, and maintain a routine (Askins & Moore, 2008; Bessell, 2001; Hildrenbrand et al., 2001; Katz et al., 1992). Reintegration programs provide these students with services and support to help them readapt to the school environment. Some students with cancer may not require special education services or psychosocial

interventions, whereas others may struggle without such assistance. Regardless, it is recommended to approach each student with appropriate sensitivity and inquire about their attitudes toward their illness, anxieties, academic concerns, and interests (Prevatt et al., 2000).

The family. Family members, especially parents, are essential players during reintegration. Parents are vital sources of information (e.g., premorbid and present functioning) that can be used to inform instruction (Cunningham & Wodrich, 2006). Historically, home-school partnerships have led to positive outcomes among children who experience learning and behavioral difficulties in school (Christenson, 2004). Families are also targets of intervention. Research indicates that parents and siblings of cancer patients risk diverse psychosocial difficulties, including post-traumatic stress, adverse emotional reactions (e.g., worry, fear, stress) and reduced quality of life (Alderfer, 2010; Anclair, 2009; Hildenbrand et al., 2011; Long & Marsland, 2011; Rodriguez et al., 2012). Some children also have high absenteeism following their sibling's cancer diagnosis (French et al., 2013). Because family stress may place an extra burden on children with cancer, addressing family concerns may have an indirect positive impact on the child's schooling. In other words, reintegration efforts may be more effective when families are involved.

Classmates. Classmates often serve as a valuable support system for cancer patients and may help mitigate negative experiences; thus, establishing and maintaining quality peer relationships is highly valued upon their school re-entry (Rechner, 1990; Searle, Askins, & Bleyer, 2003). For example, one study found that cancer patients who received support from their classmates reported less depression, less anxiety, higher self-

esteem, and fewer externalizing behaviors compared with cancer patients who lacked such support (Varni, Katz, Calegrove, & Dolgin, 1994). Shaping classmates' perception of students with cancer is an important aspect for many reintegration programs because cancer patients have reported teasing, bullying, and awkwardness among their peers (Gartin & Murdick, 2009; Hilldenbrand et al., 2011). Classmates of pediatric cancer patients might also require intervention to cope with anxiety, sadness, and fears related to their classmate having cancer.

Teachers and school personnel. Like classmates, teachers frequently provide essential social and emotional support to students with cancer during reintegration. Unfortunately, research suggests that many teachers are unaware of how to address the unique needs of students with health impairments. For example, a recent survey revealed that although 98.7% of the responding teachers reported knowing at least one student with chronic illness, less than one-half had previously received any academic preparation regarding students with chronic illness, with only one-third receiving actual formal instruction (Clay, Cortina, Harper, Cocco, & Drotar, 2004). Another study revealed that some cancer patients felt that their teachers did not know how to act around them, treated them differently than peers or ignored them altogether (Bessell, 2001; Gartin & Murdock, 2009; Moore et al., 2009). Facts like this might explain why teachers have been a target for intervention (Cunningham & Wodrich, 2006; Nabors & Iobst, 2008). Such interventions logically include providing teachers with information on how to address student concerns and misperceptions of their classmate with cancer.

Other essential school personnel likely to be involved in the coordination of re-entry services delivered to the child are administrators, school nurses, school counselors,

and school psychologists. Principals may attend meetings and ensure that the school possesses the necessary resources to provide services to the child. School nurses are important in managing the child's physical health when at school, including delivery of medication. School counselors can be helpful in providing children with emotional support via interventions. Lastly, school psychologists might provide assessment, consultation, and assist with direct intervention services for these children. The school psychologist's role is the focus of later sections.

Medical personnel. Managing pediatric cancer patients frequently involves a team of physicians and related medical service providers. Medical personnel may assist schools in re-entry by supplying valuable information about medication, side effects of treatment, and other medical information. Often, hospitals assign a liaison to assist in the transition by providing relevant medical information to the student's school. These hospital-based liaisons are likely to be the most knowledgeable about the child's illness and may even provide school personnel workshops and classroom interventions. Because students with cancer frequently require regular hospital care while attending their local school, it is essential for medical liaisons to provide up-to-date information about the student's condition and other relevant medical details.

Students with cancer, classmates, teachers and school personnel, and hospital staff are the major participants during the re-entry process and underscore the importance of a comprehensive approach to reintegration. School-home-hospital collaboration is widely considered the best method to address the complexity of challenges that surface among cancer patients returning to school (Arnett & Erickson, 2009; Barraclough, 2010; Bruce,

Newcombe & Chapman, 2012; Harris, 2009; Hermann et al., 2011; Prevatt et al., 2000; Shaw & McCabe, 2008).

Types of School-Based Re-entry Programs

Over the years, the literature has suggested many types of school-based re-entry programs for students with cancer and other chronic conditions (Bruce et al., 2012, Canter & Roberts, 2012; Georgiadi & Kourkoutas, 2010; Leger & Campbell, 2007; Prevatt, 2000), ranging from targeted to more comprehensive programs. Whereas targeted programs focus on specific problems, comprehensive programs address multiple issues.

Targeted programs. The nature of targeted interventions is meant to independently address the specific needs of students, teachers, and families. For example, a targeted program might include teacher or school personnel workshops to provide these individuals with information on cancer and its impact on learning. Covered topics might also include guidance on interacting with the child, dealing with the emotional impact, addressing student concerns, and communicating with family members. These workshops come in different formats (e.g., presentations, lectures, video) and typically last for only a couple of days. Medical personnel or school personnel with knowledge of cancer are likely to lead the workshop. In a review of re-entry programs, Research indicates that workshops are effective in increasing knowledge and teacher confidence in working with students with cancer (Baskin et al., 1983; Larcombe & Charlton, 1996; Prevatt et al., 2000), which is useful considering that teachers lack in this area. According to Prevatt (2000), additional benefits of workshops include cost-effectiveness, minimal required resources, and the ability to accommodate large audiences. As a critique, Prevatt and

colleagues mentioned that workshops are not grounded in theory and tend to lack in follow-up data.

Another commonly targeted intervention is classroom presentations. As previously mentioned, studies have indicated that some students with cancer are concerned about how their classmates react to their illness (Bessell, 2001); thus, interventions are arguably needed to address this potential problem. Perceived peer support is predictive of positive psychological adaptation (Katz et al., 1992). Classroom presentations are intended to demystify cancer and promote positive student interaction by providing cancer facts (e.g., cancer is not contagious, cancer is not a death sentence). As in workshops for teachers, medical personnel or someone sufficiently knowledgeable about childhood cancer can facilitate the classroom presentation. Studies on peer-education programs are inconclusive, but some studies have suggested that these interventions are effective in improving knowledge and attitudinal changes (Canter & Roberts, 2012; Prevatt, 2000), as well as encouraging social interaction. However, it is unclear if these self-reported intentions result in real-world interaction. Prevatt (2000) also criticized peer-education programs for their lack of a theoretical framework.

Comprehensive programs. Unlike targeted programs, comprehensive programs simultaneously address multiple problems at various systemic levels. Such programs may include teacher and peer educational presentations; therapeutic intervention for students, siblings, and parents; and ongoing consultation among home, school, and hospital staff. These programs are also individualized with the intent of meeting each student's needs (Prevatt, 2000).

Katz et al., (1977) established one of the first known comprehensive re-entry programs at the Children's Hospital in Los Angeles School. It addressed school anxiety due to hair loss, reintegration after prolonged absences, preventive intervention for newly diagnosed patients, and consideration for special education services. Support provided included consultation, individual counseling, peer education program, family therapy, and evaluation services for identifying learning needs. Unfortunately, quantitative studies for comprehensive programs, including the one devised by Katz and colleagues, are severely lacking. Prevatt (2000) reviewed six comprehensive programs, but most of these reported qualitative descriptions, anecdotal information, and case examples for program evaluation. Notwithstanding methodological limitations inherent in these studies, findings did imply improvements in attitude, attendance, and achievement among students with cancer.

In a more recent study, Georgiadi and Kourkoutas (2010) evaluated a comprehensive re-entry program using a single case research analysis on an 11-year old boy that was diagnosed with leukemia. Their program followed an ecological and ecosystemic approach that encouraged coordination among home, school and hospital ecosystems. Interventions included counseling for the child and the family, classroom presentations, and regular consultations between the hospital and school. The re-entry team consisted of a psychologist, social worker, school counselor, special educator, and an oncology nurse. The program goals included providing emotional support; improving family relationships; addressing learning difficulties; and raising cancer awareness among students and staff, which included reducing anxieties over the child's illness.

After three months of intervention, the child had improved in school achievement, self-esteem, and peer relations. Unfortunately, only anecdotal evidence was provided.

Utilization of School Psychologists During Re-entry

The roles of school psychologists have been expanding in recent years, shifting away from serving solely as a gatekeeper for special education services (Brown, Holcombe, Bolen, Thomsohn, 2006; Reschly, 2004; Wodrich, 2004). With knowledge of child development, learning, and mental health, as well as formal training in assessment, intervention, and consultation, school psychologists can serve as essential members on school re-entry teams. The following sections review the recommendations made in the literature regarding the role of school psychologists during school reintegration.

Assessment. School psychologists are experts in assessing potential learning problems, which is arguably an important first step upon school re-entry. This step is essential because cancer-related learning problems are a risk but do not appear in all students. For example, some students with cancer exhibit no difficulties with learning at first, but later show a decline in academic performance due to late effects of cancer treatment. Hermann et al. (2011) presented a case wherein a student treated for cancer with chemotherapy showed a significant drop in IQ (25 points) 2 years post-treatment. This individual case mirrors the group literature (see **Treatment Effects on Normal Development** indicating the risk of late effects). As a result, school psychologists are encouraged to collect baseline data on the child's cognitive, academic, and affective/psychosocial functioning to monitor change (Hermann et al., 2011).

Given the capricious nature of their cognitive abilities, students with cancer may require updated cognitive and academic testing every 6 months to 12 months, as well as

short-interval assessments such as curriculum-based measurements (Armstrong et al., 1999). Long (2011) and Schmitt (2011) noted that performing comprehensive evaluations every 6 to 12 months may be unfeasible in the school setting, but suggested that curriculum-based measurements (CBM), which are short academic probes sensitive to change, should suffice for progress monitoring. Still, comprehensive evaluations may be necessary every year considering that CBM data does not fully capture specific cognitive abilities (e.g., attention and memory), which risk show the greatest treatment-associated decline (Robinson et al., 2011). Long-term monitoring aside, if a student with cancer demonstrates difficulty with learning immediately upon re-entry, a comprehensive evaluation should be conducted immediately to determine if special education services are needed.

Additionally, school psychologists are encouraged to collect data on affective/psychosocial functioning early on. Broad-based measures like the Behavior Assessment System for Children-Third Edition (Reynolds & Kamphaus, 2005) can capture a wide-range of externalizing and internalizing behaviors, as well as adaptive behaviors. Although much of the literature reveals that cancer survivors do not exhibit elevated levels of psychopathology, several studies do indicate some difficulties regarding emotional adjustment (see **Affective and Psychosocial Functioning** above). It is also recommended that school psychologists use direct observation and interviews to assess behavioral difficulties further because self-report inventories may not be sensitive enough to capture existing problems (Hermann et al., 2011). In other words, existing scales may fail to address cancer-specific adjustment problems that interview or tailored observation reveal.

As highlighted above, school psychologists arguably carry a complex skill set useful in uncovering the unique learning and behavioral challenges faced by children with cancer. They typically understand attention and memory, which are commonly disrupted in children treated for cancer. They are experts in understanding the function of behavioral difficulties in the classroom, and therefore can often help determine if a child's poor work completion is the result of his or her environment, late effects from treatment, or temporary side effects such as fatigue. Therefore, it seems apparent that school psychologists should be utilized often to assess for potential school problems faced among children with cancer upon school reentry.

Consultation. It is suggested in the literature that school psychologists serve as consultants to families, teachers, and hospital staff upon school re-entry (Shaw, Glaser, & Quimet, 2011; Grier & Bradley-Klug, 2011; Sheridan et al., 2009). Harris (2006) provides a comprehensive consultation model for school reintegration that specifically addresses pediatric cancer. His approach, based on the Eco-Triadic Model of Educational Consultation, emphasizes the systems in which the child interacts: home, hospital, and school. Within this model, school psychologists can serve as a consultant within and between each ecosystem. The details of this consultation model are presented below.

Consultant-home relationship. School psychologists may serve as consultants to parents and other family members. It is quite common for family members of students with cancer to respond negatively to a cancer diagnosis (Alderfer et al., 2010; Hildenbrand et al., 2011). These negative family experiences may, in turn, cause more stress upon the child with cancer (Long & Marsland, 2011). Additionally, poor parenting may strain child-parent relationships (Harris, 2009).

Thus, school psychologists can work within this ecosystem to address family dynamics and suggest strategies for coping. Long and Marsland (2011) suggests that the family's ability to adjust to the child's cancer diagnosis is vital in reducing the risk of emotional distress and psychopathology in the child with cancer and their siblings. Foley et al. (2010) found that positive family functioning was linked to lower levels of internalizing and externalizing symptoms in pediatric cancer survivors. Additionally, school psychologists may serve as consultants between the home and other ecosystems by serving as a liaison.

Consultant-hospital relationship. Within the hospital ecosystem, school psychologists may play an essential role in communicating pertinent information to pediatricians to support students with cancer and their families (Harris, 2009; Shaw, 2011; Sheridan et al., 2009; Wodrich, 2004). School psychologists hold vital information within other ecosystems (e.g., cognitive/academic decline in school, poor attention evidenced at school/home) that can shape the determination of medical services provided to the student with cancer, including medication regimen (Harris, 2009). Between ecosystems, school psychologists might provide medical information to assist teachers on how to instruct children with cancer (Cunningham & Wodrich, 2006; Duggan, Medway, & Bunke, 2004; Harris, 2009; Wodrich & Cuningham, 2009). In collaboration with medical personnel, they might also provide parents with information about how to manage their child's illness.

Consultant-school relationships. Because school psychologists typically work within the school system, school consultation occurs most frequently. School psychologists may inform school personnel about treatment side effects, including late

effects, and suggest effective educational interventions and accommodations. They may also play a pivotal role in determining if the child may need special education services, considering it is quite common for children receiving cancer treatment to experience some trouble with learning (Campbell et al., 2006; Robinson et al., 2011). As consultants, school psychologists might inform the school about special education laws pertinent to children with chronic illnesses and ensure that the child is receiving necessary accommodations (e.g., Individualized Education Plan [IEP] or 504 plan). For example, if a student with cancer displays significant learning problems, the school psychologist can recommend an evaluation for a learning disability. Another possibility is recommending special education services under the category Other Health Impairment (OHI), which covers students with chronic illnesses who exhibit limited strength, vitality, and alertness in school resulting in subpar school performance. In fact, in one study of 161 school psychologists, 90.7% reported they were “mostly” or “completely familiar” with the OHI category, and 12.4% of the respondents helped secure OHI services for students with cancer/leukemia (Wodrich & Spencer, 2007).

Additionally, if the child's behavior has declined, school psychologists might consult with teachers to determine what the function of the child's behavior is (i.e., Functional Behavior Assessment [FBA]), and also determine if the child's poor behavior is due to his or her illness or something in the environment. School psychologists can also assist in planning classroom presentations for classmates of students with cancer; these presentations can help address misconceptions about cancer and increase interaction among cancer patients and their peers (Prevatt, 2000). Additionally, they may also serve as liaisons to the home and hospital ecosystems.

Consultation-student relationships. It is important to note that Harris (2009) includes direct service within his Eco-Triadic Model of consultation. Because this section is focused on consultation only, this part of the model will be further discussed in the section below under *Intervention*. Additionally, although Harris' consultation model appears effective in theory, it currently lacks empirical validation.

Intervention. Although delivering interventions to students and families is not a common practice among school psychologists, school reintegration may benefit from such services. Included in his Eco-Triadic Model of consultation, Harris (2009) proposes that school psychologists provide emotional support and resources to help children with cancer cope with their condition and succeed in school. Some children with cancer may be apprehensive about returning to school due to physical abnormalities (e.g., hair loss; Glasson, 1995; Vance, Eiser, & Horne, 2004); hence, school psychologists may be called upon to provide brief counseling sessions with these children.

Barriers for School Psychologists

School psychologists may encounter several barriers to providing services to children with cancer upon re-entry. The three significant barriers that are discussed include training/experience, feasibility, and defined roles.

Training and experience. In a survey of 300 school psychologists practicing in the public schools, Barraclough and Machek (2010) found that only 20% of respondent had only some formal instruction on cancer in graduate school (27% specifically for brain tumors). As for experience, only 20% of respondents had workplace training on cancer (30% specifically for brain tumors). These facts suggest that the vast majority of school psychologists who may encounter students with cancer at school may not know how to

address their needs sufficiently. However, the literature does not address how cancer training and experience might impact the school psychologist's likelihood of providing re-entry services for children with cancer.

Feasibility. Although the role of school psychologists has expanded in recent years, many school psychologists spend much of their time in assessment-related activities, leaving less time for consultation and direct intervention (Brown et al., 2006; Watkins, 2001). Additionally, school psychologists may lack the tools to provide comprehensive assessments as recommended in Hermann et al. These time constraints and lack of resources may make it difficult for school psychologists to coordinate re-entry services and adhere to the suggested roles found in the literature (Harris, 2001; Herman et al., 2001; Long, 2001; Prevatt, 2000; Schmitt, 2001). Although it may appear impractical for school psychologists to provide much of the comprehensive reintegration services recommended, no study has ever examined school psychologists' attitudes toward the likelihood of providing re-entry services for students with cancer.

Job-site characteristics. It is quite common for school psychologists to be limited in their roles because of the organizational structure of the school in which they work. Although Harris (2009) recommends that school psychologists provide emotional support to students with cancer, school counselors may be assigned to deal with emotional concerns, particularly those that arise within the general education setting. Moreover, instead of the school psychologist serving as a medical liaison during school reintegration, the school nurse might be assigned to serve in this role. The vast majority of teachers appear likely to seek assistance from the school nurse regarding aspects of a student's chronic illness (Cunningham & Wodrich, 2006). Defined roles may make it less

likely for school psychologists to provide re-entry services, despite finding the provision of such services essential. However, this has not been empirically studied.

CHAPTER 3

METHOD

Chapter 3 provides an overview of this study's participant characteristics; materials, including instrument development; study procedures; and data analysis.

Participants

There were one hundred and seventy-six participants in the study. A total of 1,200 surveys were emailed to practicing school psychologists across four regions of the United States (West: Arizona, California; South: Florida, Texas; Mid-West: Illinois, Minnesota; North East: Connecticut, New York). States were randomly selected across the four regions. Each person was given the same recruitment letter asking if they would be interested in participating in the study; a link to the study hosted by Survey Monkey was provided. School psychologists were recruited using databases supplied by school districts following a methodology used previously by Wodrich, Tarbox, Balles, and Gorin (2010). Following Wodrich et al. (2010), a comprehensive list of public school districts was created for each of the eight states across the four geographical regions of the U.S. From this list, individual school districts' websites were sought online. From these websites, the email addresses of all school psychologists were collected and added to a master list for that state. The number of school psychologists from each state was arbitrarily capped at 150, which was determined to yield a large enough sample for this study.

Of the 1,200 surveys distributed, 94 surveys were undeliverable; thus, 1106 surveys were sent out to valid email addresses. A total of 224 surveys were returned (20.3% response rate). Of those returned, 48 returned surveys were not included in the

analysis because 40 were incomplete, 7 were outside of the designated recruitment states, and 1 indicated 0 years working as a school psychologist.

Demographic characteristics of respondents are contained in Table 1, along with a comparison of demographics from the NASP 2015 Member Survey. The demographic information in both samples appears quite similar suggesting that the study's recruitment methods were successful in achieving close to a representative sample. In the current sample, eighty-five percent of respondents were female, and most were white (80.6%). The mean age of all respondents was 40 years with a standard deviation of 10 years. The youngest respondent was age 24 and the oldest was age 67. The majority of the respondents were from the South (34.6%), followed by the Mid-West (30.1%), West (23.3%), and North-East (11.9%). Most of the respondents indicated their highest level of education was Educational Specialist (43.8%), followed by Masters (29.0%), and Doctorate (25.6%).

Table 1

Demographic Characteristics of Respondents Compared to the NASP 2015 Member Survey

	Current Sample		NASP 2015	
	n	Percentage of Sample	n	Percentage of Sample
Gender				
Male	25	14.2%	200	16.2%
Female	151	85.8%	1,079	88.2%
Race				
White	143	80.6%	1,079	88.2%
Black	3	1.7%	62	5.1%
Hispanic	18	10.2%	73	6.0%
Asian	2	1.1%	35	2.9%
Other	10	5.6%	46	3.8%
Highest Level of Education				
Doctoral	45	25.6%	312	25.2%
Educational Specialist	77	43.8%	680	54.9%
Masters	51	29.0%	235	19.0%

Participant Employment Characteristics. Many respondents reported working across different grade levels within the public school system. The majority of respondents indicated working in an elementary school setting (77.2%), followed by high school (43.8%), middle school (42.0%), and preschool (36.9%). Twenty-seven percent of the respondents indicated that they worked with children from two of these four school settings (e.g., Elementary School and Middle School), twenty-two percent worked with children from three of these four school settings, and ten percent worked with children from all grade levels. The number of years worked as a school psychologist ranged from 1 to 35 years, with the average being 11.7 years. Respondents were asked to estimate their caseload per school year by indicating how many cases they were currently involved in conducting assessment, intervention, and consultation. Regarding caseload, on average, respondents reported 58 assessment cases, 49 consultation cases, and 34 intervention cases per school year.

Materials

Demographic Questionnaire. A demographic questionnaire was created to obtain basic information on all participants (see Appendix A). Specifically, the questionnaire consisted of the following items: gender, age, years of practice, level of education (doctor vs. non-doctoral), work setting, caseload, career satisfaction, and services provided.

Study Instructions and Hypothetical Case. Notes were provided about a hypothetical student with cancer (Nate), which includes information about the student's condition (brain tumor), treatment, school absences, present levels of functioning, and

parental concerns (see Appendix B). These are presented as meeting notes (bullet points) taken during a reintegration meeting attended by the student's parents and other school personnel. Participants were directed to read meeting notes as though they were the school psychologist at the student's school. The hypothetical student represents a relatively typical child with a brain tumor according to the literature. This was also verified by a small group of experts in the field of pediatric school psychology.

Summary of Record Review. A record review summary was provided, which summarized a review of the hypothetical child's records and included relevant family history, grades, standardized test scores, attendance, disciplinary history, medical history, and previous evaluations (See Appendix C). Information in the record review was based on information most school psychologists would find important before conducting an evaluation. It was verified for authenticity by a group of practicing school psychologists and school psychology doctoral students.

The Facts About Brain Tumors and Schooling. The brain tumor fact sheet served as the primary independent variable. It conveyed facts important for understanding and helping students treated for malignant brain tumors at school (See Appendix D). However, included are facts that may not be typically known by practicing school psychologists. Specifically, it included basic information suited for school psychologists about the prevalence and treatment of brain tumors, as well as information regarding its impact on school attendance, cognitive and academic functioning, and social and emotional functioning. These facts were collected from current research on pediatric cancer. The fact sheet was examined by a group of experts in pediatric school psychology, practicing school psychologists, and school psychology doctoral students to

verify the accuracy of the facts, their relevance to school psychologists and to ensure the content is readable.

Comprehensiveness of Psychological Re-entry Services for Children with Cancer Survey. The responses from this survey served as the dependent variable. Currently, no survey has investigated the comprehensiveness of psychological re-entry services provided to students with cancer. Consequently, a new survey was created to characterize this construct. This survey gathered information about the likelihood that school psychologists would provide comprehensive re-entry services to students with cancer (See Appendix E).

Instrument development. The construct “comprehensiveness of psychological re-entry services” is defined as the breadth of psychological services that might be offered to address the needs of a student returning to school following cancer treatment. The construct is thought of as a single dimension; however, it was subdivided into three domains to ensure complete construct representation. The three domains concern the types of services school psychologists might provide: assessment, consultation, and intervention (see domain descriptions below). The construct is specific to cancer and is not intended to measure comprehensives of services provided to students with other disabilities or health impairments.

Items generated for this survey are based on recommendations in the literature (Harris et al., 2009; Herman et al. 2011; Long, 2011; Prevatt, 2000; Schmitt, 2011) regarding the role of school psychologists during school reintegration for students with cancer. Specifically, the survey's 18 items consist of various psychological services (i.e., assessment, consultation, and intervention) that school psychologists might provide to

students with cancer upon school re-entry. Out of the 18 items, 7 items address assessment activities, 7 address consultation activities, and 4 address intervention activities (see Table 2).

Table 2

Breakdown of Survey Items by Subdomain

Subdomain	# of items	Item Content *
Assessment	7	Item 1: Assess the need for Section 504 services Item 2: Assess the need for special education services Item 3: Collect baseline information Item 4: Use curriculum-based measures to progress monitor Item 5: Recommend a comprehensive reevaluation every 3 years Item 6: Assess specific cognitive abilities Item 7: Conduct classroom observations
Consultation	7	Item 8: Consult with parents Item 9: Suggest classroom accommodations and modifications Item 10: Provide staff training Item 11: Provide a classroom intervention Item 12: Consult with medical doctors Item 13: Attend related school meetings Item 14: Serve as medical liaison
Intervention	4	Item 15: Provide brief individual counseling Item 16: Provide brief family counseling Item 17: Provide resources for coping Item 18: Provide crisis intervention to classmates

* Brief description of item content

The instrument uses a 5-point Likert scale (1 = I Definitely Would Not, 2 = I Probably Would Not, 3 = I am Uncertain, 4 = I Probably Would, 5 = I Definitely Would). Responses on all items within each subdomain are then added to form a composite score (dependent variable). A low composite score represents an endorsement of less extensive psychological re-entry services endorsed, whereas a high composite score represents an endorsement of more extensive services.

To ensure content validity of the survey, a group of pediatric school psychology experts read, revised, and commented on the items and their category placements. A reliability analysis of all the 18 items in the survey yielded a Cronbach's alpha of .85, which indicates good internal consistency.

Experience with Cancer Questionnaire. An additional brief questionnaire was included that asks participants about their experiences with cancer, which includes experience working with students with cancer, prior knowledge of cancer, and personal history with cancer (see Appendix F).

Procedures

IRB Approval and Recruitment Process. The study proposal was submitted to the Human Subjects Institutional Review Board (IRB) at the University of Arizona. After the study was approved, a group of school psychologists from across the United States were recruited via publicly available rosters (with email addresses) from school districts in the West (Arizona and California), South (Florida and Texas), Mid-West (Illinois and Minnesota), and Northeast (Connecticut and New York). A comprehensive list of public school districts was created for each of these states. From this list, individual school districts' websites were sought online. From these websites, the email addresses of all school psychologists were collected and added to a master list for that state. The number of school psychologists from each state was arbitrarily capped at 150. School psychologists on the master list from each state were contacted by email requesting that they participate in an online study. For those interested participants, they were directed via web link to SurveyMonkey.com. This methodology has been previously used by Wodrich et al. (2010).

General Procedures. Once participants logged in to SurveyMonkey.com, they were randomly assigned to one of two groups (“Control” Group or “Cancer Information” Group). Participants were then directed, in order, to the following: Demographic Questionnaire, Study Instructions and Hypothetical Case, Summary of Record Review, The Facts About Brain Tumors and Schooling (only Cancer Information group), Comprehensiveness of Psychological Reentry services for Children with Cancer Survey, and Experience with Cancer Questionnaire.

Data Analysis

Responses from the Demographics Questionnaire (called *Demographics* hereafter), Experience with Cancer Questionnaire (called *Cancer Experience* hereafter), and the Comprehensiveness of Psychological Reentry services for Children with Cancer Survey (called *Re-entry Services* hereafter) were coded and then recorded in SPSS 25 for data analysis. Descriptive statistics were examined, along with scatter plots, to determine if missing data and outliers were present in the survey data.

For Hypothesis 1, the impact of cancer information (independent variable) on Re-entry Services (dependent variable), was analyzed using a one-way analysis of variance. The independent variable, cancer information, had two levels: cancer-information condition (i.e., participants received information about cancer and its effect on school children) and a control condition (participants received no such information). The dependent variable was the composite score of the 18 Likert-type items derived from the Re-entry Services survey. The alpha level was set at .05.

Before conducting the ANOVA to investigate Hypothesis 1, the data were analyzed to ensure that assumptions were met. According to Green and Salkind (2011),

the requisite assumptions for an ANOVA are the following: (1) "The dependent variable is normally distributed for each of the populations as defined by the different levels of the factor, (2) the variances of the dependent variable are the same for all populations, and (3) the cases represent random samples from the populations and the score on the test variable are independent of each other" (p.184).

An analysis of the current data concluded that the three major assumptions for the use of ANOVA were met. First, the analysis indicated that the dependent variable was normally distributed across the two groups (i.e., cancer information and control). A visual examination of the data substantiated this (see Figures 1 and 2). Moreover, according to Green and Salkind (2011), even in non-normal populations, large sample sizes (above 15 cases) are typically sufficiently large to yield valid *p* values; thus, based on this study's sample size alone it is reasonable to assume that the normality assumption has been met.

Figure 1

Distribution of Composite Scores for Information Group

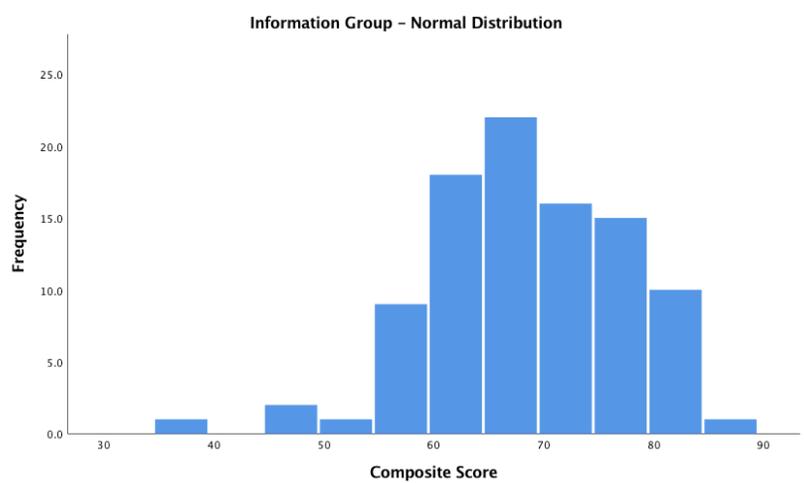
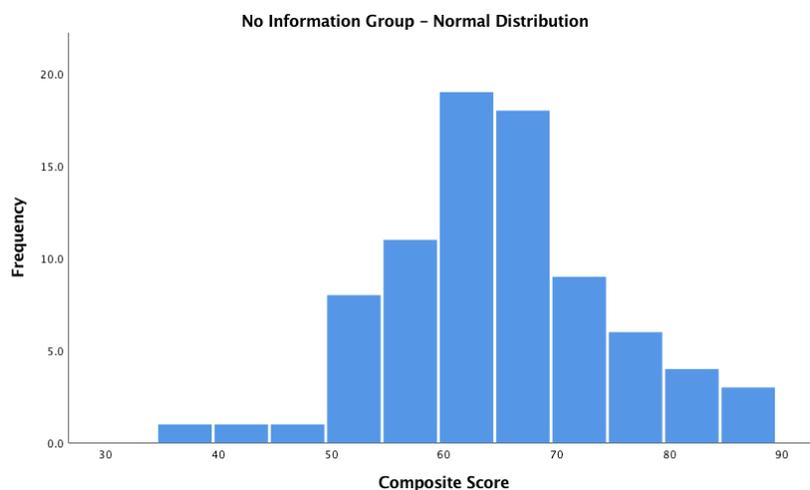


Figure 2

Distribution of Composite Scores for No-Information Group



Regarding the second assumption for ANOVA, a Levene's test for equality of variances indicated that any differences in the variances for the cancer information and control groups were not statistically significant $F(1, 174) = .01, p = .903$. Thus, the assumption that variances of the dependent variable are the same across all populations was also met.

Finally, the assumption of independence of samples was met based on the experimental design used in this study. Specifically, during data collection, participants were randomly assigned to the experimental conditions and received that condition only; thus the resulting data are logically independent of each other. In other words, participants did not cross from one experimental condition to another.

For Hypothesis 2, the impact of Demographics on Re-entry Services was examined with a multiple regression analysis. Specifically, the demographic variables (i.e., predictor variables concerning Hypothesis 2) were (a) gender, (b) age, (c) race, (d) years as a school psychologist, (e) level of education, (f) type of work setting, (g) caseload, (h) satisfaction with career, and (i) comprehensiveness of role within the school system. It is recognized that the use of the term "Demographics" is probably overly broad to be technically true. That is to say, some of these "Demographic" variables (e.g., type of

work setting, caseload, satisfaction with career, and role within the school system) are not logically demographic in nature. Nonetheless, because they concern characteristics of participants, they are most logically grouped with true demographic variables for this analysis. For data analysis regarding Hypothesis 2, the Bonferroni Method was used to correct for Type I error due to multiple comparisons being made in the analysis. Thus, an adjusted alpha was set at .001.

Before conducting the multiple regression analysis to investigate Hypothesis 2 (Demographics and Re-entry Services), assumptions were checked. According to Green and Salkind (2011), the assumptions that need to be satisfied are (a) the dependent variable is normally distributed in the population for each combination of levels of the independent variables (b) the population variances of the dependent variable are the same for all combinations of levels of the independent variable, and (c) the cases represent a random sample from the population, and the scores are independent of each other from one individual to the next. Pallant (2004) provides guidance on checking these assumptions by recommending that the data used in the analysis be examined for multicollinearity, outliers, normality, linearity, homoscedasticity, and independence of residuals.

A visual examination of the correlation table in Table 3 was conducted to examine multicollinearity (relationship among independent variables). All demographic variables in the analysis were shown to have a linear relationship with the dependent variable, yet none of the independent variables were highly correlated. As for concerns with outliers, linearity, homoscedasticity, and independence of residuals, a visual inspection of the residual plots was conducted. The residual plot in Figure 3 shows a

random distribution of residuals and no obvious patterns exists that would cause doubt about linear relationships. Moreover, no systematic curvature, autocorrelation, or inconsistent variances were observed. Although a couple of residual points appeared to be outliers (less than -3.3), Pallant (2004) suggests these are not uncommon in large samples and it may not be necessary to take any action. Based on this visual analysis, the data meets the assumption for linearity, homoscedasticity (constant variance), independent errors, and normally distributed errors.

Table 3

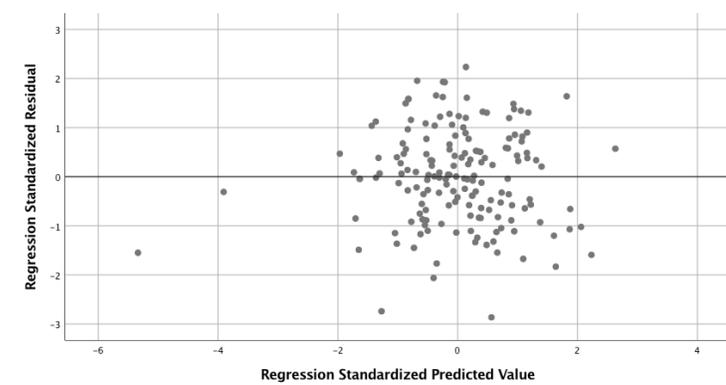
Means and Pearson Correlations for Demographic Continuous Variables

	N	Mean	SD	Pearson Correlations									
				1	2	3	4	5	6	7	8		
1. Composite	166	67.05	9.74	1									
2. Age	166	40.18	10.21	.04	1								
3. Work Experience	166	11.51	8.14	.06	.80**	1							
4. Assessment	166	58.39	35.49	-.01	.08	.03	1						
5. Intervention	166	32.10	41.76	.04	.14*	.19**	.14*	1					
6. Consultation	166	71.77	121.30	-.15*	.13*	.08	.22**	.36**	1				
7. Satisfaction	166	3.78	.87	.02	.06	-.06	-.05	.02	-.03	1			
8. Role	166	2.92	.92	.05	.12	.12	-.09	.05	.08	.46**	1		

Note: *p<.05, **p<.01

Figure 3

Plot of Residuals Against Predictor Variable



For Hypothesis 3, a multiple regression analysis was used to predict Re-entry

Services from a set of predictor variables entitled Cancer Experience. Specifically, the Cancer Experience predictor variables were (a) experience working with a student with cancer, (b) training or coursework on cancer, (c) prior and current knowledge of cancer, (d) perceived importance of having cancer knowledge, (e) experience having cancer, (f) experience knowing someone who had cancer, (g) and confidence in working with students with cancer. Much as was true regarding Demographic variables, for Cancer Experience variables, a decision was made to group several variables for logical reasons (in this case, a set of attitudinal variables that were neither related to the independent variable nor demographics). It is recognized that the term Cancer Experience is somewhat overly inclusive. Once again, for this analysis, an adjusted alpha was set at .001 after a Bonferroni correction was applied to avoid a Type I error.

Visual examination of the data was conducted before the multiple regression analysis to determine if the assumptions were met. Cancer Experience was shown to have a linear relationship with the Re-entry Services, as-depicted in the correlation table (see Table 4). Again, the residual plot in Figure 4 shows no apparent patterns suggesting a non-linear relationship. Additionally, no systematic curvature, autocorrelation, or inconsistent variances were observed. Based on this visual analysis, these data met the assumption for linearity, homoscedasticity (constant variance), independent errors, and normally distributed errors.

Table 4

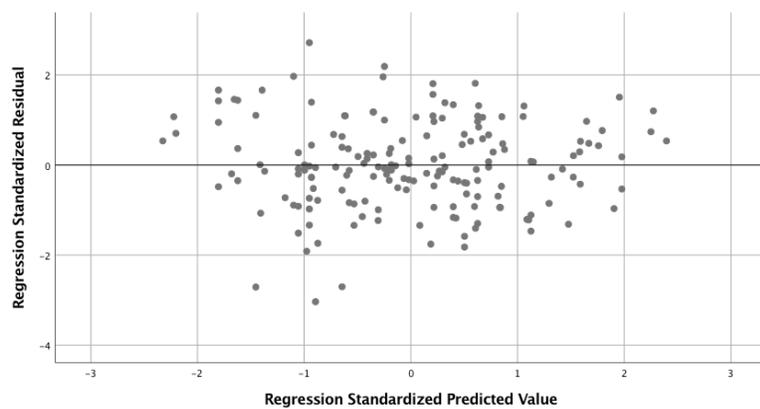
Pearson Correlations for Professional and Personal Cancer Variables

	<i>N</i>	<i>Mean</i>	<i>SD</i>	Pearson Correlations										
				1	2	3	4	5	6	7	8	9		
1. Composite	176	66.84	9.53	1										
2. Previously Work with Cancer	176	1.57	.50		1									
3. Prior Training	176	1.81	.40		-.24**	1								
4. Prior Knowledge	176	2.84	1.14		-.23**	.36**	1							
5. Knowledge After Study	176	2.63	.84		.13*	-.21**	-.20**	1						
6. Importance of Knowledge	176	3.56	.83		.38**	-.28**	-.29**	.47**	1					
7. Personal Diagnosis	176	1.95	.21		.43**	-.21**	-.14*	.21**	.36	1				
8 Family Member Diagnosis	176	1.48	.50		-.08	.03*	.03	-.03	-.10	-.15*	1			
9 Confidence	176	2.8	.88		-.07	-.05	-.05	-.09	-.03	-.10	.05	1		
					.31**	-.37**	-.23**	-.15*	.07	.71**	.62**	.33**	1	

Note: * $p < .05$, ** $p < .01$

Figure 4

Plot of Residuals Against Predictor Variable



CHAPTER 4

RESULTS

Turning now to the results of the ANOVA itself, the analysis was significant $F(1, 174) = 6.74, p = .01$. However, the strength of the relationship between cancer information and *Re-entry Services*, as assessed by R^2 , was small. In fact, the cancer information variable (this study's independent variable) accounted for only 3% of the variance of the dependent variable. The relatively small effect can be seen in the slight difference between the *Re-entry Services* Composite mean values for cancer information and control groups (See Table 5).

Table 5

Descriptive Statistics for Cancer Information Groups on Re-entry Services Composite

<i>Group</i>	<i>N</i>	<i>Min</i>	<i>Max</i>	<i>Mean</i>	<i>SD</i>
Info.	95	37	89	68.54	9.17
Control	81	37	88	64.85	9.62

Although not included among the initial hypotheses, an interaction effect was also investigated. It involved a potential relationship between cancer information and years of experience as a school psychologist as these variables relate to *Re-entry Services*. The rationale for this examination comes from a study by Wodrich, Tarbox, Balles, and Gorin (2010). In this study, the impact of information given to school psychologists (much like the independent variable in this study coupled with their level of professional experience) was found to be related to their attitude about providing services. In other words, these researchers discovered a treatment by experience interaction effect. Contrary to that study's findings, in this study an interaction effect between cancer information and years practicing as a school psychologist was not significant, $F(1,22) = .765, p = .762$. In other

words, years of professional experience did not significantly influence the impact that cancer information had on the provision of re-entry services.

Regarding the central question of Hypothesis 2's veracity, the linear combination of demographic variables was not significant $F(11, 154) = 1.29, p = .24$. The sample multiple correlation coefficient was .29, indicating that approximately 8% of the variance of the comprehensiveness of psychological services can be accounted for by the linear combination of Demographics. Similarly, part and partial correlations reveal only weak bivariate correlations between the Demographics and Re-entry (see Table 6). In other words, Demographics are not strongly related to Re-entry Services. Contrary to anticipation, some of the correlations, including the level of education, work setting, total consultation, and satisfaction as a school psychologist were negatively correlated with Re-entry Services. In contrast to the overall picture on non-significant Demographics/Re-entry Services associations, two of regression coefficients happen to be statistically significant at the $p < .05$ level: Level of education and total consultation. The variable "level of education" describes the highest level of education attained (i.e., M.A., Ed.S., Doctorate). The variable "total consultation" describes the estimated number of consultation cases conducted during a school year. However, when a Bonferroni correction was applied, the two variables were no longer statistically significant.

Table 6

Summary of Beta, Part and Partial Correlations for Demographic Variables

	Beta	Sig	Correlations		
			Zero-order	Partial	Part
Sex	.10	.25	.07	.09	.09
Age	.03	.82	.04	.02	.02
Race	.06	.50	.00	.05	.05
Years Worked	.04	.77	.06	.02	.02
Level of Education	-.16	.04*	-.19	-.16	-.16
Work Setting	-.10	.21	-.09	-.10	-.10
Total Assessments	.02	.79	-.01	.02	.02
Total Intervention	.10	.27	.04	.09	.09

Total Consultation	-.20	.03*	-.15	-.18	-.17
Satisfaction as a School Psychologist	-.04	.66	.02	-.04	-.03
Role as a School Psychologist	.06	.54	.05	.05	.05

Note: * $p < .05$

Regarding Hypothesis 3, a multiple regression analysis was conducted to evaluate how well Cancer Experience predicts Re-entry Services. The predictors were (a) experience working with a student with cancer, (b) training or coursework on cancer, (c) prior and current knowledge of cancer, (d) perceived importance of having cancer knowledge, (e) experience having cancer, (f) experience knowing someone who had cancer, and (g) confidence in working with students with cancer. Descriptive data and correlations of the Cancer Experience variables are below.

Regarding Hypothesis 3 per se, the linear combination of Cancer Experience variables was significant $F(8, 167) = 7.376, p = <.01$. The sample multiple correlation coefficient was .511, indicating that approximately 26% of the variance in Re-entry Services can be accounted for by the linear combination of Cancer Experience variables.

Based on the part and partial correlation for the Cancer Experience variables, as contained in Table 7, only *perceived importance of cancer knowledge* had a significant relationship with Re-entry Services ($p <.01$). Even after controlling for other cancer variables and adding a Bonferroni correction, this variable correlated with Re-entry Services at .29 ($p <.001$), which is moderate in strength.

Table 7

Summary of Beta, Part and Partial Correlations for Personal and Professional Cancer Variables

	Beta	Sig	Correlations		
			Zero-order	Partial	Part
1. Previously Work with Cancer	-.07	.36	-.24	-.07	-.06
2. Prior Training	-.10	.17	-.23	-.11	-.09
3. Prior	-.03	.84	.34	-.02	-.01

Knowledge					
4. Knowledge	.20	.07	.38	.14	.12
After Study					
5. Importance of	.32	.00**	.43	.32	.29
Knowledge					
6. Personal	.01	.91	-.08	.01	.01
Diagnosis					
7. Family Member	-.03	.65	-.07	-.04	-.03
Diagnosis					
8. Confidence	.05	.64	.31	.04	.03

Note: *p< .05, **p<.01

CHAPTER 5

DISCUSSION

This study explored the potential role that school psychologists play during school re-entry of a student with cancer. Many experts believe that school psychologists have already been afforded the necessary training and possess the requisite skill set to embrace a comprehensive role when providing services to students with cancer (Barraclough & Machek, 2010; Harris, 2009; Sheridan et al., 2009). This study investigated the factors that influence and shape school psychologists' attitudes toward psychological re-entry services, a topic not yet studied empirically. Specifically, the study addressed whether the availability of cancer information increases the likelihood of providing comprehensive re-entry services. It also examined the impact of demographics and practitioners' experiences with cancer on the provision of re-entry services. In this chapter, research questions, hypotheses, and results are discussed; implications of the study are presented, and the limitations of the study are considered. This chapter concludes with recommendations for future areas of research.

Targeted Cancer Information and the Comprehensiveness of Re-entry Services

It is widely agreed that providing comprehensive services to all students, including those with cancer, is desirable and represents best practices. For example, the National Association of School Psychologists promotes a model of comprehensive and integrated school psychological services (NASP, 2010), which includes direct and indirect services for children, families, and schools. However, a critical question remains: How do we get school psychologists to engage in comprehensive practice? One way, especially in the presence of low-frequency and multi-faceted conditions like cancer, is to

present them with targeted information that includes facts about cancer and its adverse effect on schooling. Although this response may seem obvious, somehow, the impact of providing such information remains unknown. There is simply nothing in prior literature confirming that, upon a school psychologist's receipt of information, the result is an increase of the comprehensiveness of services the school psychologist provides to students with cancer.

This study's Hypothesis 1 provides that confirmation. In this analogue study, it was discovered that receipt of information about cancer does increase the comprehensiveness of services to students affected by this significant health problem upon school re-entry. Indeed, school psychologists who received details about the adverse effects of cancer on learning, behavior, and social/emotional functioning reported a higher likelihood of providing a host of re-entry services than counterparts lacking these details. Thus, more cancer information resulted in more services, like assessment, teacher consultation, and mental health counseling. Again, it may seem quite logical that information about cancer and its extremely varied and sometimes dramatic negative educational implications would prompt school psychologists to ensure that necessary "supportive learning and social environments" are in place for students, as these are guidelines endorsed by NASP. Nevertheless, this appears to be the first controlled study that supports the concept that giving school psychologists more information about a student's health condition leads to a higher likelihood of providing services.

It is worth noting that confirmation of Hypothesis 1, notwithstanding its potential broader scientific and heuristic value, may not be so practically consequential. A closer look at the data addressing this study's first hypothesis might prove interesting. The

school psychologists' composite scores, averaged across all 18 items of the comprehensiveness survey, reveal similar mean scores of 3.8 (information group) and 3.6 (no-information group). When considering the Likert scale used (i.e., 1 = I Definitely Would Not; 2 = I Probably Would Not; 3 = I Am Uncertain; 4 = I Probably Would; 5 = I Definitely Would), both group's average item scores would fall closest to the anchor in the "I Probably Would" category. Thus, this suggests that the ability to influence re-entry services merely by providing supplemental cancer information is small.

Additionally, although the finding that the provision of cancer information exerted a statistically significant effect, its clinical or practical significance is probably limited. On the one hand, a statistically significant result means that there is a non-chance difference observed between two or more groups. On the other hand, a clinically significant result concerns whether a study's findings are meaningful and are considered important for real-world application. It would be ideal to confirm both types of significant results. However, it is possible to have one type of significant result and not the other, as is the case for this study. In this study, the cancer information variable only explained 3% of the variance in the dependent variable (i.e., comprehensive re-entry services). Although this finding was statistically significant, by any standard, this effect size is quite small. Thus, the impact of cancer information lacked in clinical significance. In other words, the availability of targeted cancer information has very little influence on whether or not school psychologists provide comprehensive re-entry services.

After analyzing the initial hypothesis, an additional factor was explored to understand the relationship between cancer information and re-entry services better. Given the small effect sizes of cancer information, as noted in Hypothesis 1, an additional

analysis was conducted to determine whether specific circumstances (i.e., an interaction effect) might reveal larger effect sizes. Specifically, this study further investigated if years of professional experience influenced whether or not cancer information predicted comprehensiveness of re-entry services. It seems logical that more seasoned school psychologists would be more likely to perform a more extensive array of psychological services. In fact, one other study did find an interaction effect when the experience variable was examined. In Wodrich, Tarbox, Balles and Gorin's (2010) study, school psychologists with more than 10 years of experience were found more likely to endorse the value of medical diagnostic consultation when provided more information, whereas their less experienced colleagues demonstrated no such pattern. However, when applying a similar analysis in this study, no interaction effect was found. In other words, the relationship between cancer information and the school psychologist's likelihood of providing comprehensive re-entry services was not affected by the number of years of professional experience. One possible reason for not detecting an interaction effect in the current study, where one was found in the former, may be methodology. Whereas the current study had only two levels of information (cancer information and control group), the study by Wodrich et al. (2010) included three levels of information (i.e., control group, information group, and information + rationale for the proposed practice group). Thus, multiple levels of the independent variable plus inclusion of a condition that contained more than straightforward information may be a determining factor on whether or not an interaction effect is detectable.

Demographics and Comprehensiveness of Services

School psychologists have different training backgrounds (e.g., masters, educational specialist, doctoral level), work in different school settings (e.g., elementary, middle, and high school), and serve different student populations (Curtis, Hunley, and Grier, 2002; Lewis, Truscott, and Volker, 2008). School psychologists are far from homogenous. It would thus seem logical that, when it comes to studies regarding the provision of services, school psychologists' backgrounds, work settings, and other demographic variables should be considered, as such factors are likely to be impactful. Case in point, one study found that "school psychologists with higher levels of training and more experience in the field, who work under conditions in which they serve a lower number of students, were found to engage in more consultation, individual and group counseling, and in-service training programs" (Curtis, Hunley, & Grier, 2002, p. 40). This survey demonstrates that such demographic factors have previously proven to be of consequence. Nevertheless, the impact of such variables on the provision of re-entry services for children, particularly those returning to school from cancer treatment, has yet to be thoroughly examined. The current study examines this relationship.

Hypothesis 2 was not confirmed; demographic variables were not shown to predict re-entry services. In other words, there was not a statistically significant relationship between a collection of demographic predictor variables and comprehensiveness of re-entry services. Moreover, the magnitude of this relationship is rated as small.

All the study's demographic variables, it explained a mere 8% of the variance in the re-entry services dependent variable. Thus, the demographic variables in this study did not explain much about whether or not comprehensive services would be provided.

Closer analysis of individual demographic variables reveals that only two such variables, namely the school psychologists' level of education and their total consultation conducted within a school year, yielded statistically significant correlations with re-entry services ($p < .05$). However, when a Bonferroni correction was made to account for the multiple comparisons, neither of these two variables remained correlated with re-entry services beyond chance level (with Bonferroni adjusted p-value was .001). Still, the relationship of these two variables to re-entry services may be worth exploring given a chance for Type II error when strictly adhering to the very conservative p-values from the Bonferroni method.

As explained above, there may or may not be a legitimate association between practitioners' experience level and re-entry services; whether or not such an association exists, the data nonetheless provide interesting points to consider. In the current study, the subjects identified as having the following levels of education: Masters degree only, educational specialist degree (Ed.S. degree), or doctoral degree. Interestingly, school psychologists with doctoral degrees were found to be the likeliest to provide comprehensive re-entry services, followed by those with an Ed.S. degree, and then those with a masters degree. It would be reasonable to expect that the reason why school psychologists with doctoral degrees might be more likely to provide more comprehensive re-entry services is their more extensive training experiences, which may have included experience working with students with cancer. However, further analysis suggests that such differences observed among the levels of education, albeit statistically significant, may not translate into differences in practice. When the Re-entry Services survey mean composite scores for doctoral level, Ed.S. level, and masters level school psychologists

are divided by the total number of items in the Re-entry Survey, the average item response equated to 3.87, 3.68, and 3.62, respectively, on the 5-point Likert scale used for each item. Even though these numerical values differ, when rounded, these scores all fall closest to the anchor "4", which all correspond to, "I Probably Would." As a result, though a statistically significant difference appears to exist, the practical significance is quite small.

As mentioned above, the other demographic variable related to Re-entry services was the number of consultation cases that respondents handled in one school year. According to NASP, school psychologists engage in a wide variety of consultative practices, which include “planning, implementing, and evaluating academic and mental health services,” as well as “facilitating communication and collaboration among diverse school personnel, families, community professionals, and others” (NASP, 2010). In the current study, the number of consultation cases was negatively correlated with re-entry services. It would be reasonable to expect that this is true since, with fewer consultation cases to manage, one would expect school psychologists to have more time to provide other services, such as re-entry services. However, the relationship between consultation cases and re-entry services may be constrained because it may be that consultation cases was an unreliable predictor variable. For example, there was extreme variability in the number of consultation cases (range = 0 to 1,000) with a large standard deviation (SD = 123). The wide range and variability in the number of consultation cases may be due to actual differences in caseload numbers. However, the variability may have to do with differences in how school psychologists in this sample conceptualized consultation. For instance, some school psychologists may have counted consultation cases as any

interaction between themselves and a teacher, parent, or administrator wherein student or school problems are being addressed. However, other school psychologists may have only counted behavioral consultations provided to general education students. Thus, though there appears to be a statistical relationship between the number of consultation cases and Re-entry services, it may be constrained by an unreliable predictor variable.

Cancer Experiences and Re-Entry Services

With such a high prevalence of cancer in the United States, it seems likely that school psychologists know someone or have worked closely with someone who has been diagnosed with cancer. This study found that 51% of respondents reported that an immediate family member had been diagnosed with cancer and 43% of respondents reported working with a student with cancer, which is new information that has not been revealed in the literature. Despite nearly half of all respondents indicating they have worked with a student with cancer, only 19% of these same respondents reported that they had received training in providing services to children with cancer. This is consistent with findings from a survey conducted by Barraclough and Machek (2010), wherein 20% of respondents had only some formal instruction on cancer in graduate school. Regardless of how much formal instruction they have received, many school psychologists will encounter students recently treated for cancer in their schools during their careers. However, the literature remains unclear as to how school psychologists' prior cancer experiences might impact the delivery of re-entry services.

The current study examined this relationship, documenting that there is indeed an association between cancer experience and re-entry services, as consistent with the prediction of Hypothesis 3. As a whole, the group of cancer experience variables

impacted the provision of re-entry services. This group of variables explained 26% of the variance in the dependent variable, which is a moderate effect size.

However, upon closer examination of the cancer experience variables, the variable, identified as the *importance of cancer knowledge* variable, was the only one among the group of variables that had a significant partial correlation with re-entry services. When controlling the covariates in the model, the partial correlation between the *importance of cancer knowledge* variable and Re-entry Services was moderate in strength, $r = .32$, $p = <.001$. The problem with this single variable being the only significant predictor is that, in retrospect, the importance of the cancer knowledge variable should have probably been left out of the multiple regression model. The rationale for its omission from the model is that the *importance of cancer* variable was more of an attitudinal variable than a demographic variable. In other words, this variable is a measurement of one's perception rather than a cancer experience variable (i.e., prior experiences related to cancer). Nonetheless, the inclusion of this variable provides interesting insight. The fact that the *importance of cancer knowledge* variable was the only statistically significant predictor suggests that prior personal cancer experiences, which includes training experiences related to cancer, do not have as much of an impact on Re-entry Services as previously thought. Future studies may want to further examine the effects of perceived importance of cancer knowledge in depth.

Other Considerations

Beyond supporting or refuting the study's formal hypotheses, this study's findings having to do with individual items in the Re-entry Services survey were also interesting. In particular, it was interesting to note that 57% of school psychologists indicated that

they would definitely assess for Section 504 services for the hypothetical student described in this study's case, while only 15% reported that they would definitely assess for special education. The average response for assessing for Section 504 was between "I Probably Would" and "I Definitely Would" ($M=4.38$). Much lower than the level of endorsement for Section 504 services, the average response for assessing for special education was close to "I am Uncertain" ($M=2.98$). These findings suggest that many school psychologists might recommend assessing for Section 504 services before, or as an alternative to, a special education evaluation upon students' school re-entry.

There are two important implications based on this information. First, it appears that many school psychologists are more willing to hold off assessment for special education of children with cancer if they feel like the child's needs can be met with a 504 plan. The potential flaw of this approach is that students with cancer may not be assessed for special education despite their need for it. In this study, for example, the facts presented about a fictional child included a description of potential adverse treatment effects (e.g., difficulties noted with attention, adaptability, task initiation, and organizational skills). It was interesting to note that these prospective skill deficits, combined with the knowledge of the student's medical condition, did not provoke study participants to suspect the child of having a disability that would warrant a special education assessment.

The reason for the low percentage of those endorsing special education may be attributed to unique elements in this analogue study. Specifically, positive characteristics of the student in this analogue study may have persuaded study participants to opt for minimally stigmatizing and relatively easily accessible services. That is, although the

fictional student was said to have deficits in several areas (e.g., inhibition, right side fine motor dexterity, adaptability, task initiation, and organizational skill), his overall cognitive and academic functioning were described in the case material as average. No significant behavioral problems were noted. Thus, it is plausible that few respondents chose to assess for special education because they did not see an educational need sufficiently great to warrant formal special education services. Students who do not qualify for special education services, but have a disability that affects one or more major life functions (e.g., concentration, learning), may be eligible to receive supports and accommodations through Section 504. Typically, it is much easier to qualify for a 504 plan than special education services. However, as mentioned earlier, some have argued that school psychologists have an affirmative duty (i.e., Child Find mandate) or obligation to find students who are "reasonably suspected" of having a disability under IDEA and that the threshold for assessment is often considered low (Zirkel, 2014).

Consequently, in the case of this study's fictional student, it can be argued that the child should be assessed for special education services due to a suspected Other Health Impairment (OHI) as a result of cancer and its treatment effects, especially in light of the late effects associated with pediatric brain tumors. Although understandable, the practice of foregoing special education consideration may be administratively problematic. Whether or not the fictitious student meets the subjective threshold for Child Find is debatable, and this debate is beyond the scope of this study. The important takeaway is that the large majority of school psychologists in this sample were willing to delay an assessment for special education services, which may or may not result in a violation of the Child Find obligation under IDEA. Though legal implications and recommendations

for school psychologists can be found (Zirkel, 2017), the literature regarding practicing school psychologists' attitude toward Child Find and their preference for Section 504 over IDEA is non-existent.

The second implication of the findings mentioned above is that comprehensiveness of re-entry services may be tied to whether or not school psychologists feel special education services are necessary. That is, those who think that the students with cancer should be assessed for special education would endorse more comprehensive services, regardless of cancer information received. Although an analysis of special education assessment on Re-entry services was not originally part of this study, a post-hoc exploration of these variables indicates that those who were more likely to assess for special education endorsed more comprehensive Re-entry services. For example, the school psychologists in the sample who indicated that they "Definitely Would Not" assess for special education had an endorsed lower Re-entry score (composite score of 57.85) compared to those that said they "Definitely Would" assess (composite score of 74.54). This difference suggests that school psychologists who would not assess for special education are also less likely to provide Re-entry services. Interestingly, this was not the case for 504 assessment. That is the Re-entry composite score for those who indicated that they "Definitely Would Not" assess for 504 services ($M = 65.50$) was similar than those who indicated they "Definitely Would" assess for 504 services ($M = 70.05$). Parametric tests were not conducted to determine if there was a statistically significant difference between assessing for special education or not, but visual analysis of descriptive data suggests there may be. Future research may want to explore this relationship.

The reason for the differences in Re-entry services between respondents who assess and do not assess for special education is unknown. However, one logical explanation for this is that many of services listed in the Re-entry survey include services typically provided within the special education setting (e.g., recommend re-evaluation every three years; assess attention, concentration, and memory). Thus, if individuals feel an assessment for special education is not necessary, then they may feel that other Re-entry services, particularly those related to special education services, are not needed as well. For example, if a student is not assessed for special education services, then an assessment for memory and concentration or counseling services may not be warranted. Another explanation why school psychologists who do not assess for special education are less likely to provide Re-entry services is because of their circumscribed role within special education. Many school psychologists work primarily with special education students because their services are funded through special education, whereas other school personnel (e.g., interventionists, nurses, counselors) might serve as primary service providers to general education students. Thus, if school psychologists do not feel a student warrants a special education assessment, they may not feel obligated to provide Re-entry services.

Addressing Needs with Response to Intervention

Most would agree that students who have undergone cancer treatment may need some support upon school re-entry. The reason for this is, there are considerations for students with cancer that rarely exist among other students. One such consideration is that they are at risk of experiencing the phenomenon known as "late effects," which, as widely discussed in pediatric cancer research, is when the student's health and learning

are negatively affected by cancer treatment. Late effects may appear months or perhaps even years after the completion of the treatment. In light of this information, there is presumably a heightened concern for those students treated for cancer who return to school, but who do not qualify for near-term special education services (or a 504 plan). These are the students that may, unfortunately, go unnoticed or go unintentionally neglected. For these students, Response to Intervention practices may be especially beneficial.

Response to Intervention, also known as RTI, is a service delivery model defined as "an assessment and intervention process for systematically monitoring student progress and making decisions about the need for instructional modification or increasingly intensified services using progress monitoring data" (Johnson, Millard, & Fuchs, 2006, p.2). Although RTI models differ from state to state and across school districts (Powers, Hagans, & Busse, 2008), most RTI systems are implemented at the school-wide level. They are implemented in such a way that frequent benchmark testing (e.g., curriculum-based measurements) is performed to ensure all students are progressing toward grade-level standards. For those students who are identified as not making adequate progress, evidence-based interventions are then delivered to address the targeted needs of each of those students.

It may benefit school psychologists to engage in RTI practices in their schools as a means to address the needs of students with cancer returning to school. School psychologists applying RTI could help identify signs of late effects through benchmark testing and progress monitoring, and make recommendations for academic intervention (e.g., special education referral). School psychologists applying RTI could also monitor

behavior and design interventions to address social/emotional problems in children with cancer. These behavioral interventions might include peer-based supports, check-in/out with a teacher, or counseling. As such, school psychologists working with RTI teams may be able to ensure students returning to school from cancer treatment are adequately tracked for late effects and behavioral and social-emotional problems, as well as make recommendations for intervention.

Indeed, data from the current study suggests that school psychologists are already inclined to partake in some form of academic and behavior monitoring of students returning from cancer treatment. Eighty-nine percent of participants in this study indicated that “I Probably Would” or “I Definitely Would” use curriculum-based measurements to monitor academic outcomes. Further, 85% of respondents reported that “I Probably Would” or “I Definitely Would” conduct behavior monitoring for students with cancer upon school re-entry. Thus, it seems that the majority of school psychologists are willing to engage in this aspect of RTI.

There are several barriers that school psychologists encounter while participating in RTI, which have been reviewed extensively (Marrs & Little, 2014). One barrier often cited in the literature is the lack of time to provide interventions due to a traditional “test and place” role, which dominates school psychologists’ workload. Consistent with this assertion, only 14% of respondents in the current study indicated that they “Definitely Would” provide individual counseling upon school re-entry despite the fictitious student reporting some anxiety and worry about a scar on his head, as well as executive functioning deficits. Though school psychologists may not have the time to facilitate interventions for students with cancer, they can serve as valuable consultants to school

staff by teaching them about the impact of cancer on learning outcomes and by suggesting ways to intervene. For example, school psychologists might assign a student with cancer to a peer or staff mentor and have these mentors conduct daily check-ins. School psychologists might refer these students to existing coping skills groups already conducted by school counselors. Thus, there are ways school psychologists can participate in RTI without spending too much time outside of their traditional roles.

Limitations

There were limitations in this study regarding the recruitment of participants, the methodology, and the construction of the survey used. Regarding participants, although efforts were made to reduce sampling bias by recruiting from the four geographic regions, the lack of true random sampling means representativeness may be somewhat limited. For example, because it was much easier to gather contacts from larger districts, rural psychologists may be underrepresented. However, it should be noted that demographics for age, gender, and educational degree in this sample were very similar to a NASP membership survey conducted in 2015 (NASP, 2015). The race of participants nearly matched the NASP survey, except that the current study may have slightly oversampled Hispanics and under-sampled Whites.

Regarding methodology, there were three problems associated with the experimental analogue design used in this study. First, self-report measures were used to predict how school psychologists might respond to a specific scenario they might encounter in practice, but their response may not reflect their actual behavior. For example, participants who responded that they would provide counseling or provide classroom interventions to a child with cancer may, in reality, be unable to do so because

of structural barriers at their specific school site. In another example, respondents might respond that they definitely would not assess for special education, but in practice, they might change their mind when pressured by parents and teachers to assess. There is also the possibility of social desirability bias, wherein participants respond in a manner that will be viewed favorably by others. Thus, the self-report measure used may be a better measure of current attitudes rather than future behavior.

Second, this analogue study presented a particular scenario (e.g., a child with a brain tumor), which may limit how the study's findings can be generalized. Had the circumstances been slightly different (e.g., the child had a different cancer diagnosis or received a different treatment protocol), school psychologists might have had different attitudes toward the provision of re-entry services. Thus, how a school psychologist approaches school re-entry for students returning from cancer treatment might be determined on a case-by-case basis. Accordingly, it appears that the study's findings are limited in how they might apply to situations differently than the one presented here.

The survey, although it yielded good internal consistency and was based on recommendations in the literature with help from experts in pediatric school psychology, it was not factor-analyzed to determine if the construct was a single dimension, as intended. In other words, the survey might be measuring something that was not initially intended. Moreover, item weights were not assigned, suggesting that all items in the survey were equally important in measuring the overall construct. However, this might not be the case. For example, consulting with medical doctors may be a more important re-entry service than providing family counseling, yet both are equally weighted. Adding item weights might have yielded a more accurate measure of the comprehensiveness of

re-entry services.

Third, there was no clear indicator of whether or not participants read through the entire cancer factsheet, which served as the independent variable. In hindsight, the study could have included a pre- and post-test to assess the cancer knowledge gained from the factsheet. Another possibility would be to time stamp the length of exposure to the cancer fact sheet to ensure participants received an adequate dosage of the independent variable. In doing so, it is possible that the effects of cancer information may have been more significant than initially observed.

Directions for Future Research

Despite the limitations previously mentioned, the current study provided useful information about the relationship between the availability of cancer information and school psychologists' likelihood of providing comprehensive re-entry services. Nevertheless, more research can still be done to understand this relationship better. For example, it is unclear how the characteristics of a student's cancer and treatment might affect the impact that cancer information has on school psychologists' provision of re-entry services. In the current analogue study, the effect of cancer information on re-entry services was in response to a student treated specifically for a brain tumor. The effect of cancer information on re-entry services for students treated with other types of cancer (e.g., leukemia) was not examined. One might expect that these results vary depending on the student's medical history, but this has yet to be studied.

Another area of future research that would help clarify the relationship between cancer information and re-entry services would be exploring the interaction of special education assessment and cancer information. In the current study, school psychologists'

willingness to assess for special education services appeared to have an impact on the provision of re-entry services. Although this was not thoroughly examined in this study, a quick cross tabulation of these variables suggests why this might be worth further investigation. In the study, 38% of school psychologists who received cancer information indicated that “I Probably Would” or “I Definitely Would” assess for special education as opposed to only 27% of school psychologists in the no-information group. Moreover, only 31% of those in the information group indicated that “I Definitely Would Not” or “I Probably Would Not” assess for special education, whereas 54% of those in the no-information group indicated that they “I Definitely Would Not” or “I Probably Would Not” assess for special education. Thus, it appears that cancer information may impact the likelihood of assessing for special education services. It would be interesting to conduct further analysis, perhaps looking to see whether assessment for special education significantly interacts with the relationship between cancer information and re-entry services. If a significant interaction is present, it would be worth exploring why school psychologists are more likely to provide re-entry services to students assessed for special education.

Although the current study focused on how cancer information impacts school psychologists’ attitudes, future studies might also want to focus on how cancer information impacts teachers’ attitudes. In a previous study conducted by Wodrich et al. (2011), it was discovered that the more knowledgeable teachers were about epilepsy, the greater confidence those teachers expressed about instructing students with epilepsy. For teachers instructing students with cancer, however, this association is not yet researched. Teachers may be uninformed on how to effectively instruct and support students with

cancer (Shaw, Glaser, & Quimet, 2011; Grier & Bradley-Klug, 2011; Sheridan et al., 2009). If future studies find that receipt of cancer knowledge improves teachers' confidence in instructing students with cancer, it would then be important to investigate role school psychologists can play in providing such knowledge to teachers. Well-informed school psychologists are in a position to function as consultants to teachers. Understanding the impact of cancer knowledge on teachers' attitudes would consequently add credence to school psychologists' roles as consultants during the school re-entry process. Adopting this role, moreover, would reemphasize the need for training school psychologists in the area of pediatric cancer.

Further, it would be important to understand both why school psychologists lack training on pediatric cancer (Barraclough & Machek, 2010) and how to remedy this problem. Only 19.3% of respondents in this study reported that they received training in providing services to students with cancer. School psychologists need to be aware of how cancer and its treatments can adversely affect learning and social-emotional outcomes in students, as well as how to create a plan for school reintegration following cancer treatment. One obvious way to educate school psychologists about these effects is by providing them with school-relevant cancer information. Perhaps there is a greater need for graduate programs to create a curriculum that is specific to pediatric cancer, as well as other pediatric health problems. Research might focus on the content and effectiveness of a prospective pediatric cancer curriculum and how it can be used to positively shape school psychologists' confidence and attitudes in providing re-entry services for students with cancer.

Given their lack of adequate training, school psychologists are left to their own

devices to figure out how best to serve children with cancer during school re-entry. There are no current studies that explore how school psychologists currently access cancer information and training materials. Although there is a plethora of online resources that discuss recommendations for school reintegration, the material is typically written with parents as the target audience. It may not be particularly helpful for school psychologists. For example, both of the official webpages for the American Cancer Society and St. Jude's Children's Research Hospital discuss tips for school re-entry but it r parents. Though it may be true that school psychologists glean some useful information from these articles, the material notably does not speak directly to the needs of school psychologists, thus ultimately diminishing its utility. School psychologists would benefit from resources that explain treatment effects on academic and psycho-social outcomes, targeted interventions for children with cancer, and re-entry plans for school reintegration. This information is sometimes provided in journal articles, which are not always easily accessible. Thus, research on how school psychologists access cancer information may be useful in understanding why a lack of training exists.

Conclusion

School psychologists may play a vital role during school reintegration of students returning from cancer treatment. Findings from this study suggest that educationally-relevant information about cancer can influence the comprehensiveness of re-entry services provided. This information is important because it suggests that there is value in increasing school psychologists' knowledge of pediatric cancer. Findings also suggest that the perceived importance of cancer knowledge may also increase school psychologists' provision of re-entry services. Thus, school psychologists having cancer

information and knowing its importance may result in more support for students with cancer.

These findings have implications for training programs in school psychology and practicing school psychologists. First, training programs in school psychology may want to consider adding a curriculum to address pediatric cancer, as well as other health problems. It is known from previous studies, as well as this current study, that most school psychologists do not receive such training despite a definite need (Sheridan et al., 2006). Some doctoral-level school psychology training programs such as Lehigh University and East Carolina University offer specializations in pediatric school psychology. Students from these programs learn how to advocate for the educational and social needs of children with medical conditions. They also learn how to consult with pediatric care providers and educators to evaluate the efficacy of medical, instructional, and behavioral interventions for medically involved children. Unfortunately, many doctoral students who graduate from these programs end up working outside of the schools, such as private practice or hospital settings. Consequently, few school psychologists working in the schools know how to serve students with health problems, including cancer. Therefore, it is arguably important for all students in school psychology training programs receive some instruction on how to serve students with pediatric cancer and other health problems.

Second, given many practicing school psychologists do not receive prior training in the topic of pediatric cancer, it is crucial that resources about pediatric cancer and information about its educational implications are easily accessible to school psychologists. The goal would be for pediatric cancer information to be easily accessible

through various media including webinars, podcasts, websites, or newsletters. Moreover, though free resources on pediatric cancer already online that target the needs of parents, there still exists a gaping need for cancer information that targets the specific needs of school psychologists. Increasing access to pediatric cancer information might greatly assist school psychologist, ultimately allowing them to serve students with cancer during school re-entry better.

APPENDIX A – DEMOGRAPHIC QUESTIONNAIRE

Instructions: Please complete the following questionnaire. Responses are kept confidential. If you wish, you may decline to answer an item.

1. **Gender (check the appropriate line):** Male _____ Female _____

2. **Age:** _____

3. **Race/Ethnicity (check all that apply):** _____ White _____ Black _____ Hispanic

_____ Asian _____ American Indian and Alaskan Native

_____ Native Hawaiian and other Pacific Islander

4. **Approximately how many years have you worked as a certified school psychologist?**

_____ years

5. **Level of Education (check the appropriate line):** Masters _____ Doctoral _____
Ed.S _____

6. **What type of school setting(s) do you work at (check all appropriate lines):**
Preschool _____ Elementary _____ Middle School _____ High School _____

7. **Each school year, approximately how many students do you provide the following services?**

Assessment? _____ (# of students)

Direct Intervention? _____ (# of students)

Consultation? _____ (# of students)

8. **How satisfied are you with being a school psychologist? (Circle one)**

Not at all satisfied	Slightly Satisfied	Moderately satisfied	Very Satisfied	Extremely Satisfied
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9. **To what extent is how you spend your time as a school psychologist determined by the expectations of your district and/or employer? (Circle one)**

Not at all determined	Somewhat Determined	Moderately Determined	Very Determined	Completely determined
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APPENDIX B – STUDY INSTRUCTIONS AND HYPOTHETICAL CASE

Instructions: Imagine you are a school psychologist at XYZ Elementary School. It is the beginning of the school year, and you just attended a meeting about a student returning to school following cancer treatment. Please read the meeting notes below carefully, as you will use this information to answer questions later.

Hypothetical Case for Student with a Brain Tumor

School Reintegration Meeting
9/3/14 @ 8:15am
Attendees: Parents, General Education Teacher, Principal, School Nurse, and School Psychologist
NOTES
<ul style="list-style-type: none"> • Nate is a 9-year old boy who just completed cancer treatment for a brain tumor. • He missed the last two months of school last year due to treatment and is now returning after summer break. • Treatment protocol: Surgery, intracranial radiation, and chemotherapy. • Nate is "sort of" nervous about returning to school, especially with a scar on the back of his head from surgery, but he misses friends. • Mother reports that Nate has been exhibiting some attention difficulties since his last treatment, but otherwise appears okay. • School performance in prior years have been excellent (mostly A's). • Dad is concerned about Nate's physical health at school as well as school performance. • Currently not receiving special education or 504 accommodations

APPENDIX C – SUMMARY OF RECORD REVIEW

Instructions: Please read the summary of Nate’s record review, as you will use this information to answer questions later.

Summary of Record Review
<u>Family History</u>
<ul style="list-style-type: none"> • Parents married • 2 older siblings: Sister (16) and Brother (12) • Home language is English • No significant family history for academic or psychiatric problems • No free and reduced lunch
<u>Developmental and Medical History</u>
<ul style="list-style-type: none"> • Unremarkable developmental history prior to cancer diagnosis • Passed all vision and hearing screenings • Nurse visits: In February 2014, several visits complaining of headaches and nausea. • Diagnosed with a brain tumor in the posterior fossa (March 2014)
<u>Attendance</u>
<ul style="list-style-type: none"> • 2013-2014 – 69% Attendance (year of brain tumor diagnosis) • 2012-2013 - 100% Attendance
<u>Academic History</u>
<ul style="list-style-type: none"> • Homeschooled by mother following brain tumor diagnosis • Grades (past 3 years) <ul style="list-style-type: none"> ◦ Mostly A’s with few B’s; No C’s ◦ Math and Science are his strongest subjects ◦ No grades obtained during homeschooling • Teacher Comments <ul style="list-style-type: none"> ◦ “Pleasure to have in class” ◦ “Sweet kid. Works very hard” ◦ “Has many friends” • State Standardized Testing (last year) <ul style="list-style-type: none"> ◦ Exceeds standards in reading, math, and writing
<u>Disciplinary History</u>
<ul style="list-style-type: none"> • No office referrals or teacher concerns
<u>Previous Evaluations</u>
<ul style="list-style-type: none"> ▼ • A neuropsychological evaluation was conducted by XXX Medical Center post-treatment. Nate’s skills were average on measures of processing speed, receptive and expressive language, visual-motor integration, perceptual recognition, memory, and fundamental academic achievement in reading, math, and written expression. However, some deficits were noted in response inhibition and right side fine motor dexterity. Parents also noted difficulties in adaptability, task initiation, and organizational skills. Some anxiety was also reported.

APPENDIX D – THE FACTS ABOUT BRAIN TUMORS AND SCHOOLING

Instructions: Please take a few minutes to read through the fact sheet below, then continue to the next section.

Prevalence and Mortality Rate

Pediatric cancer rates have grown in the past 25 years. In 2010 alone, at least 10,000 U.S. children and teens were diagnosed with cancer. Fortunately, with treatment, 85% of children diagnosed with cancer will live longer than 5 years past their diagnosis.

Biology of Brain Tumors

Brain tumors are abnormal cells that have grown out of control. These tumors may become cancerous, growing and spreading throughout the body and interfering with vital organs.

Treatment Options and Side Effects

Treatment success depends on individual or combined use of three techniques: surgery, radiation, and chemotherapy. Although lifesaving, these treatments cause side effects that are important when considering the status of a student at school. For example, surgery removes cancerous tumors from the brain but may risk damaging surrounding healthy brain cells vital for functions like vision, movement, and learning. Radiation therapy uses high doses of radiation to kill cancer cells, but it is very toxic and can also damage healthy tissue. Chemotherapy uses chemical agents to destroy cancer cells throughout the body. It is safer than radiation, but still has side effects, including hair loss, fatigue, nausea, diarrhea, muscle problems, and eating difficulty.

Impact on Schooling

Attendance

Attendance is a common problem among students with brain tumors. Reasons for high absenteeism include illness, treatment side effects, or hospital visits. In one study, the average number of days missed in the first, second, and third years of diagnosis was 83, 58, and 32, respectively.

Cognitive and Academic Functioning

Cognitive and academic challenges are also common in students with cancer primarily because of the hazardous effects of cancer treatment (especially cranial radiation therapy). Impairments may not appear until 2 years after treatment (known as *late effects*). Late effects include significant declines (1-2 standard deviations) in IQ, attention, memory, and psychomotor functioning, as well as difficulties in visual-spatial and visual motor integration and processing speed. Additionally, students treated for brain tumors are significantly at-risk for poor academic performance in reading, math, and spelling.

Social and Emotional Functioning

Social and emotional problems are a risk among students treated for brain tumors, but they occur less often than cognitive and academic difficulties. Still, brain tumor survivors have higher rates of depression and antisocial behavior compared to their siblings. Withdrawal and anxiety are also experienced more frequently compared to their healthy classmates, with some having reported being bullied at school because of their physical appearance (e.g., hair loss from treatment). Moreover, teachers and students are sometimes uncertain how to interact with them; some classmates hold misconceptions of their disease (e.g., it is contagious, it is a death sentence, etc.).

APPENDIX E – COMPREHENSIVENESS OF PSYCHOLOGICAL REENTRY
SERVICES FOR CHILDREN WITH CANCER SURVEY

INSTRUCTIONS: You will find a list of possible services below. **Please read each of the services and mark the response that describes the likelihood that you would provide the service for Nate (student with cancer) upon school reentry.** Please respond as if you are his school psychologist working within a school system similar to your own. Assume parental consent was obtained for all activities.

1. Assess the need for section 504 services

I Definitely Would Not	I Probably Would Not	I am Uncertain	I Probably Would	I Definitely Would
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2. Assess the need for special education services

I Definitely Would Not	I Probably Would Not	I am Uncertain	I Probably Would	I Definitely Would
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3. Collect baseline information on cognitive, academic, and affective/psychosocial functioning

I Definitely Would Not	I Probably Would Not	I am Uncertain	I Probably Would	I Definitely Would
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4. Use curriculum-based measurements to progress monitor academic performance

I Definitely Would Not	I Probably Would Not	I am Uncertain	I Probably Would	I Definitely Would
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5. Recommend a comprehensive reevaluation every 3 years

I Definitely Would Not	I Probably Would Not	I am Uncertain	I Probably Would	I Definitely Would
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6. Assess attention and concentration, memory, and processing speed.

I Definitely Would Not	I Probably Would Not	I am Uncertain	I Probably Would	I Definitely Would
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7. Monitor behavior through classroom observations.

I Definitely Would Not	I Probably Would Not	I am Uncertain	I Probably Would	I Definitely Would
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8. Consult with parents regarding potential behavior or adjustment problems

I Definitely Would Not	I Probably Would Not	I am Uncertain	I Probably Would	I Definitely Would
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9. Provide teachers with accommodations and instructional modifications to use in the classroom based on the child's specific needs.

I Definitely Would Not	I Probably Would Not	I am Uncertain	I Probably Would	I Definitely Would
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10. Provide in-service training to school staff regarding the academic impact of pediatric cancer.

I Definitely Would Not	I Probably Would Not	I am Uncertain	I Probably Would	I Definitely Would
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11. Provide a classroom intervention to address classmates concerns and misconceptions about pediatric cancer upon parent request.

I Definitely Would Not	I Probably Would Not	I am Uncertain	I Probably Would	I Definitely Would
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12. Consult with medical doctors.

I Definitely Would Not	I Probably Would Not	I am Uncertain	I Probably Would	I Definitely Would
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13. Regularly attend staff meetings on school reintegration.

I Definitely Would Not	I Probably Would Not	I am Uncertain	I Probably Would	I Definitely Would
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14. Serve as a liaison between the hospital, school, and home.

I Definitely Would Not	I Probably Would Not	I am Uncertain	I Probably Would	I Definitely Would
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15. Provide brief individual counseling surrounding issues of school adjustment.

I Definitely Would Not	I Probably Would Not	I am Uncertain	I Probably Would	I Definitely Would
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16. Provide brief family counseling to address family adjustment problems related to the child's condition.

I Definitely Would Not	I Probably Would Not	I am Uncertain	I Probably Would	I Definitely Would
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17. Provide resources for coping with adjusting to school.

I Definitely Would Not	I Probably Would Not	I am Uncertain	I Probably Would	I Definitely Would
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18. Provide classmates with emotional support if he relapses or passes away.

I Definitely Would Not	I Probably Would Not	I am Uncertain	I Probably Would	I Definitely Would
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APPENDIX F – EXPERIENCE WITH CANCER QUESTIONNAIRE

Instructions: Please complete the following questionnaire. Responses are kept confidential. If you wish, you may decline to answer an item.

1. Have you previously worked with a student with cancer (check the appropriate line):

Yes ___ No ___ (If Yes, please specify how many _____)

2. Have you previously received training/support in providing services to children with cancer (check the appropriate line):

Yes ___ No ___ (If Yes, please describe _____)

3. Have you been diagnosed with cancer?

Yes ___ No ___ (If Yes, please specify what type of cancer _____)

4. Has an immediate family member been diagnosed with cancer?

Yes ___ No ___ (If Yes, please specify what type of cancer _____)

3. How knowledgeable are you in pediatric psychology or pediatric school psychology?

Not at all Knowledgeable	Somewhat Knowledgeable	Moderately Knowledgeable	Very Knowledgeable	Extremely Knowledgeable
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4. How knowledgeable were you about cancer and its effects on schooling BEFORE this study (circle a response below)?

Not at all Knowledgeable	Somewhat Knowledgeable	Moderately Knowledgeable	Very Knowledgeable	Extremely Knowledgeable
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5. How knowledgeable are you regarding cancer and its effects on schooling AFTER this study (circle a response below)?

Not at all Knowledgeable	Somewhat Knowledgeable	Moderately Knowledgeable	Very Knowledgeable	Extremely Knowledgeable
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6. How important is it for school psychologists to be knowledgeable in cancer and its impact on schooling (circle a response below)?

Not at all Important	Somewhat Important	Moderately Important	Very Important	Extremely Important
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