The role of cancer workshops on peer acceptance for adolescents with acute lymphoblastic leukemia

Tenley Hitz

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ABSTRACT

THE ROLE OF CANCER WORKSHOPS ON PEER ACCEPTANCE FOR ADOLESCENTS WITH ACUTE LYMPHOBLASTIC LEUKEMIA

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Northern Illinois University, 2015
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Rates of adolescent cancer, specifically Acute Lymphoblastic Leukemia (ALL), are on the rise despite advancements to modern medicine. An ALL diagnosis may create unique challenges for adolescents, who often receive more severe treatment plans than do younger children, while at the same time they rely more readily on their peers for psychosocial support. Peer acceptance is vital for all adolescents, and is especially so for an adolescent with ALL, as it has the potential to not only increase resiliency but also to ease a sometimes-tumultuous transition back to the school setting. It is believed that cancer workshops could serve to increase peer acceptance for adolescents with ALL. Still, research on adolescent ALL, let alone peer acceptance, is rare.

The purpose of this study was to investigate if increased awareness of a classmate’s cancer/ALL could also increase peer acceptance and ease the ALL patient’s transition back into the school system post-hospitalization. Using the Theory of Planned Behavior, it was hypothesized that adolescents would report greater peer acceptance of a classmate who had been diagnosed with ALL following a cancer workshop about ALL.
This study utilized a *pretest posttest* design. Students (n=24) were given a *pretest* (Adolescent Cancer Knowledge Questionnaire), which measured knowledge, behavioral intent, and attitude about cancer prior to participating in an adolescent cancer workshop. After attending the workshops, students’ questions were addressed and one week following, students (n=21) were given a *posttest*.

Analysis revealed that mean knowledge and behavioral intent scores increased post-workshop. A significant positive correlation was found between knowing someone with cancer and having an increased desire to interact. Likewise, a paired *t* test revealed that the cancer workshop increased both adolescent cancer knowledge as well as their behavioral intention to interact with an ill classmate. Following the Theory of Planned Behavior, this reported behavioral intention can become actual behavior that increases the ALL patient’s interaction with his/her peers, which can potentially decrease school-related anxiety post-hospitalization among adolescents with ALL.
THE ROLE OF CANCER WORKSHOPS ON PEER ACCEPTANCE FOR ADOLESCENTS WITH ACUTE LYMPHOBLASTIC LEUKEMIA

BY

TENLEY HITZ
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A THESIS SUBMITTED TO THE GRADUATE SCHOOL
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Thesis Director:
Florensia Surjadi
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And to my love, Cyle, words could never express my ultimate gratitude for all that you are.
DEDICATION

To my grandmother, Mary, who I know is beaming with pride in heaven.
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CHAPTER 1
INTRODUCTION

Background and Rationale

Despite advancements in medical treatments and procedures, the prevalence of childhood and adolescent cancer is vast and growing, with an estimated 18% of children worldwide having a chronic illness (Shaw & McCabe, 2008) and a thousand more children and adolescents predicted to be diagnosed with cancer each year (Harris, 2009). Acute lymphoblastic leukemia, also referred to as ALL, is the most prevalent of cancers for children and adolescents. Nearly 6,000 new cases of ALL arise in the United States annually, with 19% occurring in those under the age of twenty (Harris, 2009; Hunger et al., 2012; Inaba, Greaves, & Mullighan, 2013). Adolescent and child ALL comprise 25% of all pediatric cancers combined (Hunger et al., 2012).

The National Cancer Institute defines ALL as a childhood or adolescent cancer that affects both blood cells as well as bone marrow (National Cancer Institute, 2014). This is often exhibited in the overwhelming number of faux-lymphoblasts (leukemia cells) that overtake the work of infection-fighting white blood cells (lymphoblasts). These leukemia cells, which are considered cancerous, are unproductive and take up more space in the blood stream than is conducive to health. Leukemia cells have the potential to spread quickly throughout one’s body including the central nervous system, create tumors, induce anemia, and even increase bleeding
While there is no known cause of ALL, there are several predictive factors, such as exposure to radiation, industrialization, and high birth weight (Pui, Robison & Look, 2008). Symptoms of ALL usually take the form of bruising, fever, weakness, joint pain, rashes, and loss of appetite (National Cancer Institute, 2014).

If not treated quickly and appropriately, the outcome of an ALL diagnosis is not optimistic (National Cancer Institute, 2014). Age also plays a vital role in the ALL prognosis. Children under the age of 15 are more likely to have success with treatments. However, beginning with adolescence, the prognosis outcome worsens (Ribera & Oriol, 2009; Pui, Robison & Look, 2008; Usvasalo et al., 2008). Yet, this adolescent population also has the greatest percentage of high-risk diagnoses (Inaba, Greaves, & Mullighan, 2013). Even with survival rates as high as 90% for adolescents, the high-risk diagnosis can affect an array of adolescent development, due to increased likelihood of harm caused by strong treatments (Inaba, Greaves, & Mullighan, 2013). Therefore, it is likely that adolescent patients will receive more intensive treatments than their younger counterparts and may therefore, be more apt to suffer from physical changes, low self-esteem, mood changes, and peer relationship dissolution. These effects tend to occur most notably within the social realm of the ALL patient’s development, due not only to the intense treatment but also due to the great treatment length (Inaba, Greaves, & Mullighan, 2013). Adolescent patients may also receive adult-centered as well as pediatric-centered care (Ribera & Oriol, 2009; Usvasalo et al., 2008), which may challenge consistency as well as routine in the adolescent’s life.

For most adolescent patients diagnosed with ALL, treatment typically spans from three (Annett & Erickson, 2009) to five years (Inaba, Greaves, & Mullighan, 2013). Standard treatment plans for these ALL youth are comprised of three continuing phases. The phases
include *induction of remission*, *intensification*, and *continuation* (Inaba, Greaves, & Mullighan, 2013). The first phase, *induction of remission*, lasts from 4-6 weeks and is followed by chemotherapy and supplementary medication, such as prednisone or dexamethasone (Inaba, Greaves, & Mullighan, 2013; Pui, Robison & Look, 2008). The goal of this phase is to eliminate 99% of all leukemia cells, as well as to restore normal blood cell functioning. Side effects from treatments at this phase usually include drastic hair loss and mood swings that can likewise alter the patient’s physical, emotional, and social development. Depending on the severity of their condition, high-risk patients (typical of adolescent ALL diagnoses) may receive up to 4 or 5 additional drugs in order to begin the process of eliminating the cancer blood cells. Still, adolescents prove to be an interesting population as some treatment plans are not deemed appropriate for them due to the vulnerability of adolescence, as well as the likelihood of adverse effects such as infection, psychosis, and frail bone outcomes (Inaba, Greaves, & Mullighan, 2013; Pui, Robison & Look, 2008). Medication typically given to adolescent leukemia patients can also impair neurocognitive functioning and thus, impair school performance and academic self-esteem (Maden-Swain, Katz, & LaGory, 2004).

The second phase of treatment, *intensification*, focuses on fighting off residual cancer cells, that are resistant to initial treatment, by using similar drugs and techniques to that of the *induction of remission* phase (Inaba, Greaves, & Mullighan, 2013; Pui, Robison & Look, 2008). This treatment phase can last anywhere from 20 to 30 weeks and single treatments can take up to several hours or even days that may require additional hospital stays. The hope is through intensifying treatment, the likelihood of an ALL relapse will lessen. The final phase of *continuation* typically spans for 2 or more years and consists of daily maintenance and
medications (Inaba, Greaves, & Mullighan, 2013; Pui, Robison & Look, 2008), proving that a cancer diagnosis can have lasting impacts that extend far beyond the disease itself.

Developmental Tasks and Concerns for Adolescents with ALL

According to Erik Erikson (Erikson, 1968), most adolescents are confronted with issues regarding identity, self-esteem, and peer relationships, and for those with ALL, these issues may be even more challenging. The task of forming an achieved identity is central to healthy socio-emotional development in adolescents (Erikson, 1968). An achieved identity represents that an adolescent is prepared to commit to one identity and has finished exploring other identity options (Meeus, 2011; Dunkel & Anthis, 2001). In order to accomplish an achieved identity formation, the adolescent must feel within him/herself a sense of consistency, self-definition, clear goals, as well as individuality and confidence (Waterman, 1982). If these goals cannot be met and the crises are not overcome, the adolescent may be at risk of developing role confusion or a foreclosed/fragmented identity (Dunkel & Anthis, 2001). Neither of which is considered an achieved identity formation (Waterman, 1982).

Peer relationships and peer acceptance can mediate how an adolescent’s identity is formed (Waterman, 1982). Erikson (1968) himself, notes, that adolescents are severely interested in conforming (to body expectations) as well as being accepted by their peer group. Steinberg and Morris (2001) report that appearance is the most influential source of positive self-esteem for adolescents, and that when adolescents view themselves as similar to one another, it becomes increasingly easier to be confident in one’s own self-concept. Adolescents with large friend groups also tend to display greater self-esteem (Steinberg & Morris, 2001) as well as less social role confusion (De Bruyn & Van Den Boom, 2005). Close friendships during
adolescence can also serve as protective factors, and promote increased support, communication, and self-expression (La Greca & Lopez, 1998). Still, those with low self-esteem, perhaps due to low peer acceptance, tend to experience greater feelings of depression and hopelessness (Steinberg & Morris, 2001).

As adolescents age they tend to spend less time with their parents and more time in the context of school and peer groups (Steinberg & Morris, 2001). These peer groups can have great negative or positive impacts on the adolescent’s behavior as well as identity formation (La Greca & Lopez, 1998). Previous research has found that adolescents tend to migrate towards peers who have similar interests and personalities, and that these peer influences emerge from a place of admiration and likeness rather than the previously believed notion of peer pressure (Steinberg & Morris, 2001). Self-worth and peer acceptance are interconnected during adolescence, thus adolescents tend to consider peer relationships as a top priority (De Bruyn & Van Den Boom, 2005). Previous research has also found strong links between adolescent popularity as well as likeability and self-esteem (De Bruyn & Van Den Boom, 2005). Thus, when adolescents are not accepted into a peer group, peer victimization may occur, eventually leading to feelings of rejection, loneliness, depression, withdrawal, and even aggressive behaviors (Steinberg & Morris, 2001).

Considering typical adolescent developmental tasks, adolescents with cancer may be subject to even greater challenges regarding identity formation, self-esteem, and secure peer relationships, as these issues are further complicated by fear of diagnosis, differential treatment from peers, changing physical appearance, academic concerns, as well as existential worry (Kim & Il, 2010). Woodgate (2006) refers to this as a “dual crisis”, meaning that cancer-affected teens
must work through the challenges of cancer as well the normative challenges of adolescent development.

Left unaddressed, these adversaries can place the cancer patient at risk for developing cognitive, emotional, behavioral, and social problems that may have lasting implications throughout life (Kim & Il, 2010). Decker (2007) also noted that some of the premature stressors, such as increased parental dependence and lack of fertility later in life, could vastly distress an ill adolescent. Similarly, due to limited experience with such stress, adolescents may become overwhelmed (Decker, 2007) and therefore begin to rely more heavily on social support.

It is believed that peer relationships/acceptance are crucial to the development of every adolescent, especially with respect to identity formation and self-esteem (Decker, 2007). Many patients with cancer reported the need for increased peer involvement and support throughout their treatments, especially during the initial diagnosis (Morgan et al., 2010). However, when cancer patients were asked about the most concerning side effect of cancer treatment, peer relationships was also reported as a momentous fear, second only to the actual treatment procedures themselves (Pini, Hugh-Jones, & Gardner, 2012).

Still, for those with cancer who lack peer interaction, due to increased hospitalization and intense treatment demands, feelings of isolation may occur and eventually lead to changed or even damaged peer relationships outside of the hospital setting (Morgan et al., 2010). Following this lack of normative peer involvement, low self-esteem and self-efficacy within the cancer-affected adolescent tend to occur (Zebrack & Isaacson, 2012). This, according to Erikson’s theory of development, might also impede positive identity formation (Steinberg & Morris, 2001).
Additionally, school-reentry post-diagnosis proved to be a great challenge and worry for most adolescents with cancer. The majority of the cancer patient’s concerns with school reentry branch from fears of being accepted by classmates and peers, to rebuilding/reforming social groups (Pini et al., 2012). Likewise, the adolescent may experience anxiety in interaction with peers due to a lack of confidence from missed school days (Maden-Swain, Katz, & LaGory, 2004). These social fears are then amplified by worry of being teased due to changed appearance, such as lack of hair from chemotherapy or weight loss/gain (Pini et al., 2012). These anxieties tend to appear most commonly among youth aged 10 and over (Maden-Swain, Katz, & LaGory, 2004).

School reentry programs, which often consist of school presentations and interventions to the adolescent’s classmates, have been shown to decrease school anxiety not only in the cancer patient but also for his/her parent(s) (Maden-Swain, Katz, & LaGory, 2004). Some of these programs have helped cancer patients adjust to typical school social situations (Maden-Swain, Katz, & LaGory, 2004) and have proven successful in easing the adolescent patient’s transition from hospital to school by increasing the well-classmates’ knowledge base (Benner & Marlow, 1991; Harris, 2009).

While school reentry programs are gaining popularity, they are most successful if the program can increase peer acceptance of the adolescent patient (Benner & Marlow, 1991) as poor peer acceptance is associated with further increased stress (Shaw & McCabe, 2009). Specifically, Benner and Marlow (1991), found that a cancer diagnosed classmate’s peers were more likely to report an increased desire to interact with the cancer-stricken classmate following a cancer workshop that provided ample education to the classmates about their classmate’s diagnosis and side effects of treatment. Similarly, Annett and Erikson (2009) reported that
students who had school intervention reported improved peer interactions. Still, school reentry research in regard to peer acceptance is infrequent and rare.

Although past research has suggested that school reentry programs can be useful to ease the adolescent patient’s return to school, little research has explored the specific effectiveness, the appropriate duration/timing of such programs, or provided comparison of differing programs (Annett & Erickson, 2009; Harris, 2009). Likewise, research on availability, accessibility, and long-term benefits has not yet been explored (Mayer et al., 2005). Furthermore, past research has focused mainly on elementary-aged children and has seldom explored the impact they may have on adolescent, high-risk diagnosis, and young adult populations, let alone the impact these programs may have on the well-classmates’ perceptions and desire to interact with the adolescent patient.

Statement of Research Problem

The purpose of this study was to investigate whether a cancer workshop on ALL might influence adolescents’ peer acceptance of a classmate who had been diagnosed with the disease. In sum, this study aimed to uncover whether increased awareness of a classmate’s disease could increase peer acceptance, and in turn ease the ALL student’s reentry into the school system.

Hypothesis

Using the theory of planned behavior, it was hypothesized that adolescents would report greater peer acceptance of a classmate who had been diagnosed with ALL following a cancer workshop about ALL.
The Independent Variable

The independent variable for this study is the cancer workshop provided to adolescents in order to increase overall awareness of ALL.

The Dependent Variable

The dependent variables for the study are the adolescents’ general cancer knowledge, attitude toward adolescent cancer patients, as well as their general behavioral intent/desire to interact.

Theoretical Framework

The Theory of Planned Behavior for Attitude and Behavior Change

Concepts of peer acceptance, self-esteem, behavior, and relationship building are central to the scope of cancer workshops; thus, the theory of planned behavior (TPB) will be utilized in this current study. Researchers have found the TPB to be a salient predictor of behavior (Cook, Moore & Steel, 2005), and that attitude and intention can account for 20% of all actual behavior (Armitage & Conner, 2001). This theory, an expansion on the earlier theory of reasoned action (Conner & Armitage, 1998), holds behavioral intention as its primary focus (Ajzen, 1991). The belief behind the TPB is that certain behavior can be predicted by perceived intention (motivation), as well as the individual’s attitude or beliefs on the behavior. Desired behavior can be also increased by promoting the individual’s performance confidence or belief in his/her ability to act, also referred to as perceived behavioral control (PBC) (Ajzen, 1991; Conner & Armitage, 1998; Cook, Moore & Steel, 2005). Thus, the basis of this theory, for the purpose of
this study is tri-fold, as it incorporates *behavioral intention, attitude*, (Conner & Armitage, 1998), and *knowledge* (PBC) in one’s ability to act.

The TPB has been found to be an effective basis for previous peer education programs (Edwards, et al., 2007). By utilizing the key concepts of the TPB, peer education programs can work to change peers’ attitudes and behavioral intentions, by also increasing their knowledge-base (confidence level). Thus, cancer workshops for peers that provide cancer awareness, modify damaging outlooks, and increase peers’ belief in their ability to interact with an ALL diagnosed classmate, have the potential to increase the peers’ intent to interact with the ALL patient upon his/her return to school. In sum, cancer workshops have the potential to increase cancer knowledge, change negative attitudes, and promote intended interaction with ALL diagnosed peers. According to the TPB, these intended actions are also likely to become actual behavior (Armitage & Conner, 2001).
Cancer workshops and school reintegration programs that served children with a variety of cancers began in the 1970’s (Harris, 2009). The primary focus of these workshops was to increase the young cancer patient’s scope of normalcy, self-esteem, sense of mastery and control, alongside a conscious de-identification of the student from the diagnosis. Previous school reintegration programs have included educational materials and information about cancer, its treatment, and the psychosocial side effects it can incur from the patient as well as his/her classmates. Harris (2009) describes the following as effective features of a successful school reentry program: collaboration and coordination with the school system, diagnosis specific information, and classmate education.

While this may seem like an overwhelming undertaking for the school, family, and professionals, the feasibility of an ALL cancer workshop has been researched and found to be not only applicable, but also potentially worthwhile for moderating the negative effects of cancer and school reentry for youth (Annett & Erickson, 2009). Still, even though ALL is the most prevalent and high-risk cancer diagnosis for adolescents, school reentry programs and cancer workshops for ALL youth are rare and often understudied in social research. Little is known about the most favorable timing or content of such a program (Annett & Erickson, 2009), although, the salience of ALL workshops are implicit.
While cultural exceptions do exist, in the United States it is common for a physician to endorse education about an adolescent’s cancer diagnosis to be presented to the adolescent’s classmates (Mayer et al., 2005). It is believed that increased awareness as opposed to general knowledge can increase positive psychosocial adjustments. A 2005 study by Mayer et al., discovered that physicians report cancer workshops to have high influence in decreasing social stigma brought on by fear and ignorance.

School Reentry for the ALL Adolescent

With financial concerns as a basis, many hospitals are decreasing an adolescent’s length of stay in the hospital (Shaw & McCabe, 2008). These shorter hospital stays may then lead to increased ALL patient involvement within the school atmosphere. Thus, researchers suggest that the school system be sensitive to the particular needs of adolescents recovering from a chronic illness (Maden-Swain, Katz, & LaGory, 2004), such as ALL. Likewise, the primary aim of school entry should be to support the adolescent in his/her academic and social journey, as well as to advocate for his/her special needs and concerns. However, this increased school involvement for the adolescent with cancer may also increase the adolescent patient’s risk of maladjustment (Harris, 2009) such as increased anxiety over missed schoolwork, greater absenteeism (Maden-Swain, Katz, & LaGory, 2004), and the potential marking of him/her as a target of teasing from classmates and peers (Shaw & McCabe, 2009).

School reentry programs for the cancer-stricken adolescent (similar to that of ALL treatment plans) have previously consisted of 3 phases (Maden-Swain, Katz, & LaGory, 2004). The first of which is the determination by medical team that the adolescent cancer patient is ready for return to school. What is notable in this phase is the influence of the cancer patient’s
peer relationships. For instance, if an adolescent’s classmates and friends stay in close contact with the adolescent during hospitalization, school phobia is remarkably decreased. Maden-Swain, Katz, and LaGory (2004), note that the cancer-affected teen should not be allowed to socially withdraw during this initial phase as it could lead to decreased confidence and self-esteem, only further validating the adolescent patient’s social fears. Therefore, it is vital professionals encourage knowledge and educate ALL adolescents’ peers about the disease and diagnosis in order that they are not overwhelmed by interacting with a cancer-stricken friend.

The second phase of school reentry is the physical school presentation or workshop provided to the adolescent cancer patient’s classmates (Maden-Swain, Katz, & LaGory, 2004). This workshop is often lead by medical team personnel and aims to explain the diagnosis to the class. It is believed that this workshop can alleviate peer’s fears and misconceptions. Questions may be allowed during the workshop with the end result being a reinforced social environment. This portion of school reentry will be central to the current study. The final phase of school reentry is the continued communication between the medical and academic personnel, illuminating the idea that school reentry itself is a continuing process.

As school return is a developmental goal for adolescent patients (Mayer et al., 2005), it is imperative that professionals work to decrease the social stigma through school reintegration programs and workshops (Mayer et al., 2006), by allowing adolescents to return to normal school activities, including peer group interactions, as soon as medically feasible (Maden-Swain, Katz, & LaGory, 2004). While social stigma may lead to aggressive questioning, and verbal abuse of youth with ALL, the hope is that through these awareness programs and cancer workshops, professionals may not only improve peer support (Harris, 2009) but also become advocates for the adolescent patient as a person, and not simply as a diagnosis (Shaw & McCabe,
Likewise, working to counter the negative potential of an ALL adolescent developing a fragmented identity is essential.

**Peer Understanding of Cancer**

During adolescence, the brain is undergoing major development due not only maturity but also to hormonal changes. Frontal and parietal changes in the brain are the most dramatic during this stage (Choudhury, Blakemore, & Charman, 2006). These areas of the brain correlate to decision-making, risk behavior, control, memory, and even perception taking. Perception taking involves the ability to not only understand how others are feeling but also how your actions impact another’s feelings. Considering the notion that adolescent brains are still working to perfect this skill, some teacher-oriented scaffolding may be a useful tool in helping adolescents understand the consequences of their actions (Choudhury, Blakemore, & Charman, 2006).

It is also during this series of cognitive development that the idea of the “imaginary audience” emerges (Choudhury, Blakemore, & Charman, 2006). The imaginary audience refers to the egocentric belief that one is consistently under the judgment of others and can lead to increased self-consciousness as well as decreased self-esteem. Thus, cognitive development might not only play a part in how an ALL adolescent views him/herself, but also it might impact how an ALL patient’s peers view and interact with the ALL adolescent.

Knighting et al. (2011) found that while many school-aged students do have a basic awareness of cancer, their outlook is unique. Nonetheless, as children age, their awareness also rises, perhaps due to life experience and greater educational opportunities. Still, this study noted that students in affluent locations had a better overall understanding of oncological variations.
Contrary to this, those students in deprived locations mentioned illegal drugs and violence as a cause for cancer (Knighting et al., 2011), which could explain the social stigma placed on adolescents with ALL by their schoolmates in some locations.

These findings also illuminate the need for education and cancer workshops, in order that adolescents learn the difference between bad health and bad choices as most viewed cancer negatively and mentioned death in their writings or drawings (Knighting et al., 2011). School reintegration programs, cancer workshops, and social experiences during treatment should be the first step in intervention (Thompson et al., 2009), in order to increase resiliency and self-esteem in the ALL patient, as well as to counter the potential negative effects of cancer (Kim & Il, 2010).

**Peer Acceptance**

Although most adolescents spend their vast majority of time in school, it is not always obvious that peer interaction that also occurs in the school setting can play a pivotal role in the adolescent patient’s social development and coping ability (Kim & Il, 2010). It is during this time, that adolescents become increasingly aware and self-conscious of the opinions and attitudes of classmates and teachers (Choudhury, Blakemore, & Charman, 2006). Likewise, it is believed that the school setting is the “workplace of children” and may play a fundamental role in adolescent development and even rehabilitation (Chekryn, Deegan, & Reid, 1987).

Adolescent social support has been found to be a salient protective factor from negative outcomes (Maden-Swain, Katz, & LaGory, 2004) for ALL adolescents. The importance of social support at school had been particularly underscored in past studies: Adolescents with cancer who had positive school interactions with their peers have been shown to also hold higher resilience
from stress compared to those who had less peer interaction. Notably, the teacher interaction was only relevant in that it may interfere with the cancer patient’s peer interactions, positioning the peer relationship as a vital aspect of school return (Kim & Il, 2010).

Amidst challenges of increased behavior problems and internal adjustments, such as depression, withdrawal, and impulsivity (Shaw & McCabe, 2008) many of their classmates are likewise misinformed on the details of cancer and its side effects. Misconceptions about the illness and its side effects might perpetuate the common fear among adolescents with ALL for being treated differently by their peers (Kim & Il, 2010), as well as their now changed appearance and personality due to cancer treatment. This is perhaps why adolescents with cancer, including ALL, tend to have smaller social circles (Kim & Il, 2010).

Changed physical appearance often leads ALL adolescents to have poor body image, self-esteem, and self-worth that could otherwise have been countered with peer acceptance and encouragement (Pini et al., 2012). Adolescents with cancer tend to report greater loneliness and lessened peer tolerance due to appearance (Pini et al., 2012). This lower peer acceptance may be a result of lacking confidence to interact with peers due to not only appearance but also from looming judgment from others, including cancer ignorance.

Pini et al. (2012) noted that hair loss and teasing from the loss of hair was the number one stressor for youth returning to school. It is believed that this isolation due to appearance can have a significant impact on the ALL student’s sexual maturity and identity formation (Morgan et al., 2010). Furthermore, poor body image can often lead to homeschooling/hospital schooling requests or even school absenteeism (Pini et al., 2012). Peer rejection is also associated with
lower school attendance and has resulted in a five time increase of school absenteeism for adolescents with cancer (Shaw & McCabe, 2008).

**Increased Maturity and Smaller Social Circles**

As previously noted, ALL adolescents tend to have smaller social circles compared to control groups of healthy youth (Pini et al., 2012). However, this is not always due to body image issues as stated above. ALL adolescents tend to report greater maturation when compared to healthy controls, such as increased empathy and existentialism. However, even ALL adolescents who had high peer interactions and acceptance pre-diagnosis tend to report a lack of understanding and an increased distance with friends post-diagnosis. This can lead adolescents to feel left behind within their peer group and further complicate illness identity, sexual maturation/intimacy (Pini et al., 2012), as well as trust. Many adolescents also undergo a developmental emotional regression which can promote a negative change in friendships as well as overall peer acceptance (Harris, 2009).

**Cancer Workshops and Peer Acceptance**

Morgan et al. (2010) reported that feeling different could be tantamount to an attack on one’s self esteem. Morgan et al. (2010) also noted that adolescents with cancer are direct in their desire to be treated normally by their peers, family, and professionals as this normal treatment may guide and ease an adolescent’s reentry into society. The study continues to report that if professionals place peer involvement and peer education at the center of care and intervention then normality is promoted instead of the illness (Morgan et al., 2010). In sum, awareness and
peer acceptance could not only positively impact the ALL adolescent’s return to school, but might also increase self-esteem and promote successful identity formation.

Similarly, this treatment of normalcy often creates a snowball effect; if professionals and parents work to maintain a normal environment as well as typical behavior and interaction with the ALL adolescent, it in turn enhances the likelihood of peer acceptance (Morgan et al., 2010). The presence of cancer workshops could also ignite this strand of normal treatment by countering ignorance and naivety. As school reentry programs have been known to lessen psychosocial trauma, this can be one of the reasons why parents of adolescents with ALL reported greater desire for cancer education to be provided to their son/daughter’s teacher and classmates (Morgan et al., 2010)

**Summary of the Literature Review**

Since the 1970’s school reentry programs have been a focus of adolescent psychosocial cancer treatment (Harris, 2009). Although, these programs and workshops have been infrequently studied, let alone standardized, they have shown to provide vast improvements in the overall social development of ALL adolescents (Annett & Erickson, 2009). Physicians and professionals alike note the great impact these workshops could potentially hold for minimizing the negative side effects on peer engagement that most youth with cancer encounter during treatment (Mayer et al., 2005).

These negative peer effects may result from the classmates’ lack of knowledge and understanding to the adolescent patient’s insecurity based on changed appearance and personality. Changes in peer groups may also be a result of the ALL adolescent’s increased maturity (Pini et al., 2012) or dissimilarly, his/her emotional regression (Harris, 2009). However, by using the TPB as well as by integrating cancer workshops in the school setting, it is believed
that the ALL adolescent’s classmates will be better versed in the side effects of ALL treatment and may therefore, be more likely to want to accept and interact with the cancer diagnosed classmate (Mayer et al., 2005) regardless of physical or emotional changes. This increased peer acceptance could potentially increase school attendance (Shaw & McCabe, 2008) for the ALL adolescent, as well as lessen psychosocial concerns the adolescent patient may have upon school reentry.
CHAPTER 3

METHODOLOGY

Participant Selection

This current research was modeled from previous research on school reentry and peer acceptance performed by Benner and Marlow, in 1991, which included a group of 39 participants. However, this research focused solely on the adolescent population (ages 15 to 18) in southern Wisconsin. This chosen high school currently enrolls 1,122 students of which 75% are white or non-Hispanic and 30% of which are economically disadvantaged (Wisconsin Department of Public Instruction, 2013-2014). This student population was chosen based on convenience, as well as location. Out of the 1,122-student body, a sample of approximately 300 students were invited to participate in and complete the study in agreement with Bartlett, Kotrlik, and Higgins’ (2001) appropriate sample size scale as well as the Roasoft (2004) sample size calculator for statistically fitting sample sizes (based on a alpha of $p < 0.05$ and a confidence level of 95%). The Roasoft calculator ensured that the sample size is fitting based on the population size and expected outcome.

Students were recruited to participate through the involvement of a consenting teacher at the high school. The teacher was able to promote and inform students of the study via the school’s e-mail and twitter account, as well as by making in-person classroom announcements throughout the school. Students who were intrigued by the study also invited friends to
participate, creating a snowball effect. Of the sample of 300 students encouraged to participate, 75 students voiced interest in becoming involved with the study.

The interested 75 students were given parental guardian consent forms as well as student assent forms, to be signed. The consenting teacher was responsible for distribution, collection, and submission of the consent forms from his/her students to the workshop leader. Completed forms were collected from the teacher over a two-week period, prior to the workshop. Written consent to participate was also obtained from the teacher prior to any teacher involvement.

Preceding the study all written informed consent forms were obtained and accounted for by the workshop leader. Consent forms included both signatures from the students’ legal guardians, if under 18, as well as signatures from the students themselves confirming their assent to participate. Only students who had provided appropriate consent were offered the subsequent workshop and questionnaire. A total of 24 students submitted all consent forms, attended the cancer workshop, and completed the initial questionnaire. As students were free to drop out at anytime, a total of 21 students participated to the full study’s completion.

Prior to the workshop/data collection, the principal of the school, as well as the school district’s Research Compliance Office, approved the study and articulated support of the workshop leader’s research attempts. Prior to data collection, approval from the Institutional Review Board (IRB) at Northern Illinois University was sought and, on January 22nd, 2015, approval was obtained.
Student Demographics

The student participants (n=24) age ranged from 15-18 years, with an average mean age of 16.13 years. The majority of students (83.3%) described their race as white (n=20) and 79.2% of the students reported their gender as female (n=19). Half of the participants (n=12) reported that they were in their second year of high school (see Table 2). Students also reported their parent’s highest level of education. Responses ranged from “did not finish high school” to “doctoral degree.” Twenty-five percent of fathers (n=6) had received a high school diploma, while 45.8% of mothers (n=11) had received their high school diploma (see Tables 3 and 4).

Table 1 presents overall demographics of the participants.

Table 1. Demographics of student participants including age and parental education.

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>Mother’s Edu.</th>
<th>Father’s Edu.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>16.13</td>
<td>2.38</td>
<td>2.71</td>
</tr>
<tr>
<td>Median</td>
<td>16.00</td>
<td>2.00</td>
<td>2.00</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>.947</td>
<td>.1952</td>
<td>1.781</td>
</tr>
</tbody>
</table>

*Education (On a scale of 0-7) 0=unknown-7=doctoral degree
Table 2. Frequencies and percents of student’s race, grade, and gender.

<table>
<thead>
<tr>
<th>Race</th>
<th>n</th>
<th>Percent</th>
<th>Gender</th>
<th>n</th>
<th>Percent</th>
<th>Grade</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>20</td>
<td>83.3</td>
<td>Male</td>
<td>5</td>
<td>20.8</td>
<td>Freshman</td>
<td>1</td>
<td>4.2</td>
</tr>
<tr>
<td>Hispanic</td>
<td>3</td>
<td>12.5</td>
<td>Female</td>
<td>19</td>
<td>79.2</td>
<td>Sophomore</td>
<td>12</td>
<td>50.0</td>
</tr>
<tr>
<td>African American</td>
<td>1</td>
<td>4.2</td>
<td></td>
<td></td>
<td></td>
<td>Junior</td>
<td>4</td>
<td>16.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Senior</td>
<td>7</td>
<td>29.2</td>
</tr>
</tbody>
</table>

Table 3. Frequency and percents of fathers’ educational attainment.

<table>
<thead>
<tr>
<th>Father’s Education</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not graduate High School</td>
<td>3</td>
<td>12.5</td>
</tr>
<tr>
<td>High School</td>
<td>6</td>
<td>25.0</td>
</tr>
<tr>
<td>2 year college</td>
<td>5</td>
<td>20.8</td>
</tr>
<tr>
<td>Some college</td>
<td>1</td>
<td>4.2</td>
</tr>
<tr>
<td>Bachelor's</td>
<td>2</td>
<td>8.3</td>
</tr>
<tr>
<td>Master’s</td>
<td>1</td>
<td>4.2</td>
</tr>
<tr>
<td>Doctoral</td>
<td>1</td>
<td>4.2</td>
</tr>
</tbody>
</table>
Table 4. Frequency and percents of mothers’ educational attainment.

<table>
<thead>
<tr>
<th>Mother’s Education</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>High school</td>
<td>11</td>
<td>45.8</td>
</tr>
<tr>
<td>2 year college</td>
<td>5</td>
<td>20.8</td>
</tr>
<tr>
<td>Bachelor’s</td>
<td>3</td>
<td>12.5</td>
</tr>
<tr>
<td>Master’s</td>
<td>1</td>
<td>4.2</td>
</tr>
<tr>
<td>Doctoral</td>
<td>1</td>
<td>4.2</td>
</tr>
</tbody>
</table>

Of the student participants, almost all (n=23, 96%) had previously known and/or currently know someone with a cancer diagnosis. Out of this large percentage of students, 29.2% had previously had an encounter/relationship with someone who had an ALL diagnosis (n=7). These previous experiences with cancer may account for certain behavioral intent changes post-workshop as further described in Chapter 4 (see Table 5). None (n=0) of the students reported any personal history or diagnosis of cancer.
Table 5. Frequency and percent of students’ previous cancer experiences.

<table>
<thead>
<tr>
<th>Know Someone with Cancer</th>
<th>$n$</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>1</td>
<td>4.2</td>
</tr>
<tr>
<td>Yes</td>
<td>23</td>
<td>95.8</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Know someone with Leukemia</th>
<th>$n$</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>17</td>
<td>70.8</td>
</tr>
<tr>
<td>Yes</td>
<td>7</td>
<td>29.2</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Personal History of Cancer</th>
<th>$n$</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>No</td>
<td>24</td>
<td>100.0</td>
</tr>
</tbody>
</table>
**Procedure**

While it was not feasible to prevent teachers and adolescents from sharing knowledge of an ALL/cancer diagnosis, no formal cancer education/intervention was intentionally provided previous to the study. Therefore, the adolescents who participated in the study were thought to have fairly malleable ideas about ALL, as well as its outcomes. The 21 consenting students were offered identical questionnaires at two varied points of time. The *pretest* questionnaire was administered to the participants upon the arrival of the cancer workshop leader, yet prior to the workshop presentation. In order to minimize social desirability, confidential responses were collected and placed into a suitable and secure envelope that did not allow the classmates to be aware of one another’s responses.

The cancer workshop occurred during after-school hours, per request of the school district. The workshop incorporated cancer information on ALL diagnosis, treatment, side effects, emotional effects, and typical peer responses/reactions to ALL (See appendix A). The workshop spanned for approximately 40 minutes, with an additional 10 minutes allotted for questions at the end. The PowerPoint presentation of the workshop as well as a list of student-appropriate resources was offered to the classroom teacher post workshop for future reference (See appendix B).

One week following the workshop, the questionnaire/posttest was administered once again. This, according to Benner and Marlow (1991), was in order to allow the information to be assimilated and accommodated by the students in conjunction with Piaget’s Cognitive Development Theory. Student questions, commonly those on positive peer interaction with a cancer-stricken classmate, were also addressed at this time.
A gift certificate drawing was used as incentive for students to partake and complete the series of questionnaires. The gift certificate drawing took place immediately following the completion of the posttest questionnaire.

**Instruments**

**Adolescent Cancer Knowledge Questionnaire (ACKQ).** For pretest and posttest, ACKQ was utilized to measure peer’s acceptance and willingness to interact with a potential classmate who had been diagnosed with ALL. This questionnaire’s format was adapted from that of Benner and Marlow (1991). It consisted of a total of 28 questions that were used to interpret the students’ cancer knowledge, attitude, and behavioral intent. Examples of ACKQ can be found in Appendix C.

**Basic Cancer Knowledge**

In order to measure adolescent cancer knowledge, 21 yes or no questions regarding basic cancer facts as well as ALL knowledge were presented. These 21 questions addressed cancer’s causes (i.e., Can you catch cancer by kissing someone who has cancer?) symptoms (i.e., Can leukemia cause you to bruise easily?), diagnosis questions (i.e., Is cancer caused by having bad hygiene?), treatment (i.e., Do most cancer medicines cause hair loss?), and emotional/social responses (i.e., Do teens with cancer always feel sad and depressed?). Out of these 21 questions, n=12 required an answer of “Yes” to be considered correct, and n=9 required and answer of “No” in order to be correct. Correct responses were assigned 1 point, with a total range of 0-21 possible points. The greater the questionnaire score, the greater the adolescent knowledge of cancer as measured by the ACKQ.
Behavioral Intent

In order to analyze the student’s behavioral intent, 6 Likert-Scale questions, asked classmates to evaluate their potential desire to interact with an adolescent with ALL. Sample questionnaire items included, “when my classmate is in the middle of treatment and looks differently than before treatment” and “when others are teasing my classmate at school.” Student responses ranged from 1 (no desire) to 4 (great desire). A possible score range between 6 and 24 was possible, with 6 indicating the least possible desire to interact and 24 indicating the greatest possible degree of desire. Moderate intent was valued at 15 points, with the highest possible mean equaling 4. Cronbach’s alpha for pretest behavioral intent (n=6) was $\alpha = 0.7$, while for posttest behavioral intent $\alpha = 0.82$ (see Table 6).

Attitude

In order to measure the students’ attitude toward another adolescent who has cancer, 2 supplementary Likert-Scale questions were included. These 2 questions specifically address concern about ALL. Responses were scored on a scale of 1-4 with 1 indicating the least concern and 4 indicating the greatest concern. A score of 2 represented the least possible amount of concern regarding cancer while a score of 8 represented the greatest worry. There was a possible score range of 2-8 with median responses receiving a score of 5, and the highest possible mean equaling 4. Cronbach’s alpha for attitude was not indicative of significant internal consistency at $\alpha = 0.06$ for pretest and $\alpha = -0.49$ (see Table 6). These results may suggest potentially unsuitable items to measure for attitude.
Table 6. ACKQ Statistics and Reliability

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>Mean(SD)</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADOLESCENT CANCER KNOWLEDGE (ACK)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACK Pretest</td>
<td>21</td>
<td>17.9(1.54)</td>
<td>----</td>
</tr>
<tr>
<td>ACK Posttest</td>
<td>21</td>
<td>19.7(1.10)</td>
<td>----</td>
</tr>
<tr>
<td>ADOLESCENT BEHAVIORAL INTENT (ABI)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABI Pretest</td>
<td>6</td>
<td>3.44 (.4)</td>
<td>0.7</td>
</tr>
<tr>
<td>ABI Posttest</td>
<td>6</td>
<td>3.76 (.37)</td>
<td>0.82</td>
</tr>
<tr>
<td>ADOLESCENT ATTITUDE/CONCERN (AAC)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AAC Pretest</td>
<td>2</td>
<td>2.45 (.63)</td>
<td>0.06</td>
</tr>
<tr>
<td>AAC Posttest</td>
<td>2</td>
<td>2.38 (.61)</td>
<td>-0.49</td>
</tr>
</tbody>
</table>
CHAPTER 4

RESULTS

Descriptive Statistics

This study uses one group pretest post-test experimental study design. This study was designed to investigate the effects of cancer workshops on peer acceptance for adolescents being treated with ALL by examining changes in peer cancer knowledge, attitude, and intent. The alpha score or $p$ level was set at $p<0.05$ for this study and the confidence interval was set at 95%.

Scores for the cancer/ALL knowledge portion (21 questions) of the ACKQ had a total possible range of 0-21 with all correct responses assigned 1 point. Pretest range for this sample was 15-20, while posttest range was between 17-21. As previously noted, the greater the questionnaire score, the greater the supposed adolescent knowledge of cancer. The mean pretest score for this sample was 17.9 (SD= 1.54) indicating an initial above-average cancer knowledge base. The mean post-test score increased by 1.8 points to 19.7 (SD= 1.10) indicating a significant increase in overall cancer/ALL knowledge (see Table 6). sample, both the pretest’s and posttest’s mean range was from 2.5 to 4. The pretest indicates that this sample had a mean pretest score of 3.44 (SD=.4) as well as an increase to 3.76 (SD=.37) for posttest behavioral intent (see Table 6).
Adolescent cancer attitude/concern (2 questions) was scored on a scale of 1 (least concern) to 4 (greatest concern). A score of 2 represented the least possible amount of concern regarding cancer while a score of 8 represented the greatest worry. A lower degree of concern was thought to be indicative of a more positive outlook of the adolescent patient with ALL. There was a possible score range of 2-8 with median responses receiving a score of 5, and the highest possible mean equaling 4. This sample’s pretest scores ranged from 1.50-3.50 while posttest scores remained fairly consistent with a range of 1-3.50. Pretest attitude/concern mean was 2.45 (SD=.63) and posttest attitude for this sample was 2.38 (SD=.61) indicating a very slight decrease in concern (see Table 6).

Correlations

Pearson Correlation was run to test for the relationships between the study variables as well as demographics. When considering correlations amongst the pretest sample, a significant correlation was found between the Hispanic participants and their connection to knowing someone with leukemia ($p < .01$). Similarly, a correlation was found between this sample of Hispanic students and their reported desire (behavioral intent) to interact ($p < .05$) with a proposed peer who has leukemia (see Table 7).
Table 7. Pearson Correlation of Variables of Interest for Pretest.

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Hispanic</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Know Someone with Leukemia</td>
<td>.589**</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Reported Behavioral Intent</td>
<td>.431*</td>
<td>.287</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>4. Knowing Someone with Cancer</td>
<td>---</td>
<td>---</td>
<td></td>
<td>---</td>
</tr>
</tbody>
</table>

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

Significant correlations were again found amongst the posttest group of participants as well as their responses (See Table 8). Unsurprisingly and analogous to the pretest, there was a significant correlation (p < .001) between Hispanic participants and their experiences with knowing someone who had leukemia. However, correlations from the posttest also display a high correlation between behavioral intent/desire to interact for those who knew of someone who had cancer (See Figure 1).
Table 8. Pearson Correlation of Variables of Interest for Posttest.

<table>
<thead>
<tr>
<th>Variable (Posttest)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Knowing Someone with Cancer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Knowing Someone with Leukemia</td>
<td>.134</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Hispanic</td>
<td>.079</td>
<td>.589**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 4. Posttest Behavioral Intent | .779** | .222 | .143 | |}

Note *p < .05 ** p < .01.
Figure 1. Score differences for adolescent cancer knowledge.

*ak_1 = pretest
*ak_2 = posttest

ak_1 Mean = 17.9
ak_2 Mean = 19.71
ak_1 Std. Dev. = 1.62
ak_2 Std. Dev. = 1.10
N = 21
Analysis of the Hypothesis

The hypothesis of this study posited that by utilizing the Theory of Planned Behavior cancer workshops would increase adolescents’ peer acceptance and desire to interact with a potential ALL classmate. The independent variable for the study was the provided cancer workshop that aimed to increase ALL awareness. The impact of the independent variable was assessed at two different times, immediately post-workshop and again one week post-workshop using the ACKQ. The dependent variables needed to test the hypothesis were: general cancer knowledge, attitude, and behavioral intent. Mean differences between pretest posttest were then assessed using a paired samples \( t \) test.

The paired samples \( t \) test suggested there was a statistically significant difference between the mean number pretest adolescent cancer knowledge scored (M=17.9, SD=1.62) and posttest adolescent cancer knowledge (M=19.71, SD=1.10) that was scored, \( t(20)=5.70, p=.00, \alpha=.05 \). Likewise, the \( t \) test showed a statistically significant difference between pretest behavioral intent scores (M=3.48, SD=.34) and posttest behavioral intent scores (M=3.76, SD=.37), \( t(20)=4.02, p=.00, \alpha=.05 \). However, pretest (M=2.45, SD=.63) and posttest attitude and concern scores (M=2.38, SD=.61) were not statistically different, \( t(20)=0.47, p=.64, \alpha=.05 \) (see Table 9).
Table 9. Paired t test for adolescent knowledge, behavioral intent, and attitude.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>t</th>
<th>df</th>
<th>p(2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Knowledge</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest</td>
<td>17.9</td>
<td>1.62</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5.70**</td>
<td>20</td>
<td>.000</td>
</tr>
<tr>
<td>Posttest</td>
<td>19.71</td>
<td>1.10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>.34</td>
<td></td>
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<td>4.02**</td>
<td>20</td>
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<tr>
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<td>.37</td>
<td></td>
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<td><strong>Attitude</strong></td>
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<td>.63</td>
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<tr>
<td>Posttest</td>
<td>2.38</td>
<td>.61</td>
<td></td>
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</table>

*Note* *p < .05** **p < .01.*
Figure 2. Mean differences for adolescent behavioral intent.

*ab_1 = pretest
*ab_2 = posttest

ab_1 Mean = 3.48
ab_2 Mean = 3.76
ab_1 Std. Dev. = .63
ab_2 Std. Dev. = .61
N = 21
Figure 3. Mean differences for adolescent attitude and concern.

at_1 Mean = 2.45
at_2 Mean = 2.38
at_1 Std. Dev. = 1.71
at_2 Std. Dev. = 1.10
N = 21

*at_1 = pretest
*at_2 = posttest
CHAPTER 5

DISCUSSION AND CONCLUSIONS

Discussion

Even with the ever-advancing influence of modern medicine, child and adolescent cancer rates remain high (Shaw & McCabe, 2008). Adolescents encounter several challenges beyond their typical developmental range when diagnosed with a cancer, such as ALL (Kim & Il, 2010). Many adolescent patients with ALL fear differential treatment from peers as well as the medical procedures, alongside the increasing normative developmental challenges of adolescence, such as identity formation and forming peer groups, creating a “dual crisis” for those adolescents with cancer (Woodgate, 2006). For adolescent patients, peer acceptance has been shown to be a salient protective factor (La Greca & Lopez, 1998) and may also aid in their sometimes-challenging reentry into the school system (Benner & Marlow, 1991; Harris, 2009). While little research exists, past research has suggested that cancer workshops may be beneficial for promoting cancer knowledge as well as peer acceptance for adolescence with ALL (Annett & Erikson, 2009).

The purpose of this study was to investigate if increased awareness of a classmate’s cancer/ALL could increase peer acceptance in order to potentially ease the ALL patient’s transition back into the school system post-hospitalization. It was hypothesized that adolescents would report greater peer acceptance of a classmate who had been diagnosed with ALL.
following a cancer workshop about ALL, by reporting increased knowledge and behavioral intent as well as lessened concern in their questionnaire responses post-workshop.

Initial analysis revealed an increase in mean cancer knowledge from pre-workshop to post-workshop. Alongside this increased adolescent cancer/ALL awareness, student’s behavioral intent mean scores also increased post-workshop indicating that students had a greater desire to interact with a classmate with ALL after participating in the cancer workshop. This finding is consistent with previous research that indicates that greater peer awareness of a classmate’s diagnosis is beneficial (Mayer et al., 2005) and could likewise serve to increase peer acceptance (Annett & Erikson, 2009). The current study was modeled from a previous study by Benner and Marlow (1991), which also found that ample education presented to a cancer patient’s peers helped amplify the students’ desire to interact with the cancer-stricken classmate. Despite the fact that the current study was modeled from previous research, it stands alone in that it directly addressed the impact of an ALL diagnosis on peer acceptance. This illness-specific (ALL) workshop content is therefore a significant strength of the study, due to the fact that previous research has not yet fully explored these affects of ALL on adolescent peer acceptance and school reentry.

The current study also suggests that cancer workshops may best serve as protective factors when presented to a class that directly engages and or knows a classmate with cancer. Pre-test correlations found that those students who knew someone with ALL initially displayed an increased desire to interact over those who did not know someone with ALL. This may indicate that those students who knew someone will ALL had an innate desire to interact with the classmate, even though they may not have had reported greater knowledge of ALL and/or the skills in which to appropriately interact with their classmate. This may also denote that illness-
specific workshops may be beneficial for increasing behavioral intent, as suggested by Harris (2009). These workshops may also serve to debunk any myths about ALL, alleviate concern, and build students’ self-esteem with regard to peer interaction with classmates who have cancer.

This study also found a significant correlation between behavioral intent scores and knowing someone with cancer post-workshop. This finding indicates that those who currently know someone with cancer were more likely to also report greater desire to interact with an ALL classmate post-workshop, suggesting that these students may be more likely to find the workshop content relevant and/or worthwhile and may therefore, receive higher benefits from the workshop than those who participate in the workshop without knowledge of someone diagnosed with cancer. This result may imply the salience and appropriateness of a cancer workshop for adolescent students who currently have a classmate with cancer. While this may seem unsurprising, past research has not yet focused on the appropriateness or relevancy of these workshops from the well-classmates’ perspective, which may suggest that this finding is particularly noteworthy.

Paired t-test analysis of the student’s ACKQ responses revealed a high statistical significance between pre-workshop adolescent cancer knowledge and post-workshop adolescent cancer knowledge. This increase in knowledge was likely due to the cancer workshop presentation. Knowledge growth that resulted from attending a cancer workshop is consistent with the belief that teacher-assisted scaffolding may be a useful tool in aiding student understanding (Choudhury, Blakemore, & Charman, 2006) about cancer.

Knowledge alone may not be enough to help ease an ALL patients’ transition back to school. When peer acceptance is nonexistent in an adolescent’s life, the occurrence of peer victimization, which often leads to depression, anxiety, withdrawal, loneliness, and feelings of
rejection (Steinberg & Morris, 2001) may occur. Thus, it becomes increasingly vital that peer interaction continues to occur not only when an adolescent is hospitalized due to an ALL diagnosis, but also as they work to reenter the school setting (Morgan et al., 2010). If students are not adequately prepared for what to expect when a classmate has cancer, their desire to interact with a peer who has ALL may be challenged. Thus, cancer workshops aim to educate students on appropriate means to interact and engage with a classmate who has ALL.

This study revealed that the increased mean in behavioral intent/desire to interact was most likely due to the cancer workshop; positing that the workshop served as a relevant tool in aiding student’s progression of knowledge as well as their desire to spend time with a classmate with ALL. This is consistent with the findings of Benner and Marlow’s (1991) study, which also found that students who attended a cancer workshop were more likely to report greater peer acceptance/desire to interact with a classmate who had cancer. Peer acceptance and interaction with friends have been found to not only promote positive identity formation and increased self-esteem for adolescents (Decker, 2007) but also serves as a protective factor against negative outcomes (Maden-Swain, Katz, & LaGory, 2004). For those with ALL, peer acceptance has been shown to not only increase resiliency (Kim & Il, 2010) but also to potentially increase school attendance (Shaw & McCabe, 2008).

While both knowledge and behavioral intent were influenced by the workshop, levels of student concern do not seem to share the same outcome. Despite the reported slight decrease in adolescent concerns about cancer, the workshop does not seem to have played a significant role. Perhaps the results of the study may be different if attitude toward a potential peer with ALL were not been measured solely by an adolescent’s concern about cancer (as previously performed by Benner and Marlow in 1991).
According to the Theory of Planned Behavior, desired behavior may be influenced by increasing one’s belief in his/her ability to act in a certain manner, as well as his motivation to act (Ajzen, 1991). This theory posits that attitude and intention can account for 20% of all actual behavior (Armitage & Conner, 2001) implying that a student who reported high intention to interact with a classmate who has cancer will likely interact with that classmate in actuality if given the opportunity. Thus, cancer workshops have the potential to increase adolescent cancer knowledge as well as adolescents’ behavioral intention to interact with an ill classmate. If this reported behavioral intention becomes actual behavior, the ALL patient will experience an increase in peer interaction, which could then significantly decrease school-related anxiety about returning to school post-hospitalization.

Limitations

Several limitations exist in this study. First, in order to acquire participants that fit the scope of the study, convenience sampling was used. Due to this sampling technique, generalization about the results of this study should be done with care. Likewise, the series of questionnaires, while designed to capture the difference between pretest and posttest may influence the results of this study. For instance, while the research design incorporated the use of confidentiality to reduce the likelihood of attaining merely socially desirable responses, the repeated measured design allows the students to 1) self-report and 2) be affected by the influence of a completing an identical questionnaire twice, both of which might influence the results.

Furthermore, an expansion of the questionnaire to include “attitudes” with incorporate feelings such as fear of interaction, empathy, anxiety, uneasiness and excitement would have been beneficial. Likewise, being able to account for a student’s perception of the peer and or
closeness/friendship pre-diagnosis may aid in understanding the student’s view of and/or attitude toward the ALL classmate the classmate pre-workshop as well as post-workshop.

The occurrence of an after-school program may limit availability for participants of this age. Student extra-curricular activities as well as transportation issues may contribute to the small sample size. This small sample size included limited diversity amongst participants as well as an increased group of students who had had previous encounters with a cancer patient, which may have skewed the results. Due to this small size, the results of the study should be interpreted with care.

Similar to this, the students who decided to participate may represent a group of students (1) more open to engaging in the workshop or (2) those with personal interest in the program. Also, the majority of the students represented a fairly analogous age range/grade in school. While, this workshop was beneficial for this specific group of students, future studies should consider the student’s developmental age alongside numerical age, when conducting the workshop and analyzing its impact. This developmental age may also influence how the TPB should be incorporated into the workshop content, as all adolescents develop at differing rates and uniquely comprehend information.

**Implications for Future Research**

This research also holds several implications for future research as increased adolescent cancer knowledge has the potential to increase adolescent peers’ desire to accept and interact with vulnerable populations. This acceptance may also help ease ALL adolescents’ transition to school, increase peer acceptance, self-esteem, aid in identity formation, and serve as a protective factor against negative effects of adolescent ALL.
Future research should expand this study into a longer period with a greater range of participants, perhaps as a supplement to an in-school activity, in order to not only account for changes in acceptance, knowledge, and intent over time, but also to increase the validity of the study. Likewise, collaboration between the workshop leader and school system professionals may also benefit the study. Professionals such as social workers and school counselors may serve to be influential in not only promoting the study’s importance, but also in increasing student participation.

Cancer workshop/peer acceptance studies are rare, thus, broadening the extent of this study to account for further cultural, SES, and other demographic differences may have a positive impact on the generalizability of results. Additionally, parallel and coordinated studies that take place at various locations and are assessed by a group of researchers could aid in both the reliability and legitimacy of future studies.
REFERENCES


Appendix A

CANCER WORKSHOP FORMAT
WORKSHOP FORMAT

I. What is Cancer?
   a. Definition
      i. Normal Cell Function
      ii. Abnormal Cell Function
      iii. Many Different Kinds (ALL)
   b. How do you get cancer?
      i. Don’t Know (How do you get ALL?)
      ii. Things that Don’t Cause it:
          1. Food
          2. Not Taking Care of Yourself
          3. Bad Thoughts or Actions
          4. Injuries
          5. Contagions
   c. Do people survive cancer?

II. Treatment of Cancer
   a. Types of Treatment
      i. Surgery
      ii. Chemotherapy
      iii. Radiation Therapy
   b. Side Effects of Cancer Treatments
      i. Hair Loss
      ii. Weight Loss/Gain
      iii. Nausea/Vomiting/Mouth Sores
      iv. Bone Marrow Suppression

III. Emotional Effects of Cancer
   a. How do teens with cancer feel about having cancer?
      i. Sad
      ii. Scared
      iii. Lonely
   b. What are teens with cancer able to do?
      i. Most things they did before
      ii. Few Restrictions
   c. How should classmates treat the teen with cancer?
      i. As Before
      ii. Be a Friend
      iii. Keep in touch

(Brenner & Marlow, 1991)
Appendix B

POWERPOINT PRESENTATION SLIDES OF ADOLESCENT CANCER KNOWLEDGE WORKSHOP
Adolescent Cancer Workshop PowerPoint Presentation Slides

Adolescent Cancer Workshop
Presented By:
Tenley Hitz
Graduate Student at Northern Illinois University

What is Cancer?
**What is Cancer?**

- Humans are made of cells
- Each person begins as one cell
- This cell grew and divided to create many cells that make up your body system
- Right now, there are millions of cells in your body
- These cells work day and night (and even right now) to grow, divide, and keep you healthy.
- There are 200 different kinds of cells in your body!

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**What is Cancer?**

- Cancer begins in your cells
- Instead of your cells growing and then dying when they are too old to work → your cells never die → they become lazy
- Having cancer means you have too many lazy cells in your body and there is not enough room for your healthy cells to work.
Types of Cancer

- Cancer can happen anywhere in your body, but it usually spreads through your blood system

- You can have cancer:
  - In your skin, organs, bones, fat, muscles, blood, brain or even your spinal cord

Leukemia begins in your blood

Acute Lymphoblastic Leukemia

- Fancy name for Cancer in blood and bone marrow

- Bone marrow makes too many white blood cells (Lymphocytes) that become lazy and take space away from red blood cells, platelets, and healthy white blood cells
Leukemia Symptoms

- Fever
- Bruising
- Dark red spots under your skin (called patechiae)
- Pain in your bones or joints
- Lumps in neck, underarm, or stomach
- Feeling full behind your ribs
- Weakness
- Being tired
- Pale face
- Not feeling hungry

Remember! Always talk with your doctor.
Your doctor will take a sample of your blood to see if there are leukemia cells in it.

How do you get leukemia?

- Most of the time, doctors don’t know why people some get cancer
- Today, there is still no way to prevent leukemia
- Unpredictable and could happen to anyone
- Although, there are a few things that put people at risk for leukemia:
  - Identical twin of someone with leukemia
  - Radiation or chemotherapy
  - Genetic disease like downs syndrome
How do you get leukemia?

Things that **DO NOT** cause leukemia:

- Food
- Not taking care of yourself
- Bad thoughts or actions
- Injuries
- **Contagions**
  - This means that you **CANNOT** catch leukemia from someone who has it.

So go ahead and hang out with a friend who has leukemia.

---

**Do teens with Leukemia survive?**

**YES!**

- Cancer is **NOT** the leading cause of death for teens → accidents are.
- There is a high rate of survival → **90% of teens survive leukemia!**
- Although, there is always a chance that the cancer could take a teen’s life.

---

![Graph showing distribution of deaths in teenagers 13-19 by cause of death.](source)
Leukemia Treatments

- Chemotherapy
  - Drugs that fight off cancer

- Radiation therapy
  - Uses radiation (energy) to shrink the leukemia cells

- Targeted therapy
  - Anticancer drugs

- Stem cell transplant
  - Cells are placed into the body to help healthy blood cells grow

- For those older than 10 years old → given larger doses of drugs

Side Effects from Treatment

- Lowered number of blood cells
- Infection
- Sleepiness
- Hair loss
- Nausea/vomiting
- Mouth sores

- Rashes
- Diarrhea
- Missed school days
- Concentration problems
- Moodiness
- Weight gain/weight loss
- Problems having children later in life

Usually these symptoms go away after treatment
How do teens feel about having cancer?

- Scared
- Anxious
- Sad
- Lonely
- Insecure about new appearance
- Concerned about dating
- Afraid to talk to friends about it
- Worry classmates will tease them
- Concerned that they may lose friends
- Disappointed about missing events like prom

What can teens with cancer do?

Most everything they did before...

- Sports
- Art
- Reading
- Hang out with friends
- Drama

Teens that have leukemia may get tired easier or may need some extra TLC but that doesn't mean they can't have fun and be active
How should you treat a classmate with leukemia?

- Be prepared
- Talk about it
- Listen
- Be Patient
- Be real about it but stay positive
- Treat them the same way you did before
- Be silly and have fun
- Stick up for them
- Be kind
- Help out with school work

For more information...

- Kidshealth.org
- Teenshealth.org
- American Cancer Society
- Leukemia and Lymphoma Society
- National Cancer Institute
- Center for Disease Control

The above sites indicate where the presented information was found. Images were found using Google images.
Appendix C

ADOLESCENT CANCER KNOWLEDGE QUESTIONNAIRE

Format adapted from Mabe et al. (1987).
ADOLESCENT CANCER KNOWLEDGE QUESTIONNAIRE

Fill in your responses below

Name:

Age:

Race:

Grade in school (circle one): Freshman    Sophomore    Junior    Senior

Teacher’s name:

Gender (circle one): Male    Female

Highest level of education completed by your father (or primary caregiver):

Highest level of education completed by your mother (or primary caregiver):

Do you know anyone with cancer? (Circle one)  
Yes/No

Do you know anyone with Leukemia? (Circle one)  
Yes/No

Have you ever had Cancer? (Circle one)  
Yes/No

If yes, what kind? _____________________________
ADOLESCENT CANCER KNOWLEDGE QUESTIONNAIRE

Circle an answer of YES or NO

1. Do teens with cancer get tired easily? YES NO
2. Do teens with cancer usually want to spend more time alone? YES NO
3. Is it easier for someone with cancer to catch a cold? YES NO
4. If you have cancer, can you spend time outside? YES NO
5. If someone in your family has cancer, will you most likely get it too? YES NO
6. If you tease a friend with cancer, will his/her cancer get worse? YES NO
7. Can teens with cancer play sports/do art/hang out? YES NO
8. Can you catch cancer after sharing food with someone who has cancer? YES NO
9. Can cancer medicine make you throw up? YES NO
10. Can cancer medicine make you lose weight? YES NO
11. Does having cancer prevent you from attending school regularly? YES NO
12. Are teens with cancer always sad and depressed? YES NO
13. Is cancer caused by not having good hygiene? YES NO
14. Do some teens with cancer feel insecure about how they look? YES NO
15. Do most cancer treatments cause hair loss? YES NO
16. Can you catch cancer by kissing someone who has it? YES NO
17. Will you get cancer if someone who has it sneezes on you? YES NO
18. Do some cancer medicines give you mouth sores? YES NO
19. Can leukemia make you bruise easily? YES NO
20. Is leukemia treated with chemotherapy? YES NO
21. Is cancer the leading cause of teenage death? YES NO
CANCER KNOWLEDGE QUESTIONNAIRE

For each statement, choose a Score of 1 to 4.

1 = No Desire to Interact, 2 = Little Desire to Interact, 3 = Some Desire to Interact, 4 = Great Desire to Interact

**BEHAVIORAL INTENT**

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<th>Statement</th>
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<tbody>
<tr>
<td>1. When my classmate is in the middle of treatment and looks differently than before treatment.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>2. When others are teasing my classmate at school.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>3. When my classmate is unable to attend school/extracurricular activities.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>4. When my classmate is feeling depressed or anxious due to cancer treatment.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>5. When my classmate’s cancer progresses/gets worse.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>6. When others (healthy friends) are not able to hang out?</td>
<td>1 2 3 4</td>
</tr>
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In each circumstance, choose a Score of 1 to 4.

1 = No Concern, 2 = Little Concern, 3 = Some Concern, 4 = Great Concern

**ATTITUDE**

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<tr>
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<tbody>
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<td>1. I am concerned that I may also get cancer.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>2. I am concerned that my classmate may die from cancer.</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>