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Leah M. McDonnell  
*University of Central Florida*

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SELF-EFFICACY AND COPING IN TRANSITION OF CARE AFTER  
REMISSION OF CANCER IN ADOLESCENTS

by

LEAH M. MCDONNELL

A thesis submitted in partial fulfillment of the requirements  
for Honors in the Major Program in Nursing  
in the College of Nursing  
and the Burnett Honors College  
at the University of Central Florida  
Orlando, FL

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Thesis Chair: Leslee D' Amato-Kubiet

## **ABSTRACT**

The improvement in cancer remission rates in children and adolescents due to advances in cancer treatment and therapy has led to the development of guidelines that address long-term follow up for survivors of childhood cancers. Adolescents often experience negative emotions related to the fear of uncertainty about long-term survival after cancer remission, yet often report feelings of hope and optimism for the future more than adult cancer survivors. The purpose of this study was to understand the role of self-efficacy and coping in adolescents after remission of cancer. A secondary purpose was to analyze which coping strategies supported long-term survival goals after cancer remission in adolescent populations. A systematic literature review was conducted from the following online databases: Cumulative Index to Nursing and Allied Health Literature (CINAHL), Medical Literature On-line (MEDLINE), Education Resources Information Center (ERIC), and PsycInfo. Selected articles included those published between 2000-2016 that were written in English and were peer-reviewed. The results of the study revealed that most adolescents with cancer remission do not experience long term psychosocial issues related to their cancer diagnosis and treatment. However, a large percentage of adolescent cancer survivors report intermittent depression, suicidal ideation and a lower quality of life due to survival after remission. The literature indicates that multiple, integrative forms of behavioral therapy: cognitive, psychosocial, and family based treatment models, help to enhance long term quality of life in adolescent cancer survivors. Strategies that use positive coping methods and improve self-efficacy related to long term survival after remission have demonstrated improvement in psychosocial behaviors in adolescents and promote a better outlook on planning for the future. Future research that analyzes the most effective coping skills to practice after

cancer remission and that optimize self-efficacy related to long term survival can positively influence quality of life for adolescent cancer survivors.

## **DEDICATION**

For all of the children and adolescents who are the real heroes out there fighting cancer every day. You are the ones who are the strongest people I know. I hope that this can bring you even more strength and help make a miracle in your life.

## ACKNOWLEDGMENTS

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I would also like to thank all of my close friends and family for their support through this journey and my journey through nursing school. Your support has pushed me through days that I did not think I could finish. Thank you for teaching me what it means to be a true friend and to give the compassion and love that all human beings deserve.

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## INTRODUCTION

The rate of cancer survival after remission past five years in adolescents with all types of cancers has drastically increased to approximately 80 percent. This increase is primarily due to advances in cancer treatment and drug therapy. This is a remarkable increase from survival rates of 30 percent in the 1960's (Robinson et al., 2009). Cancer diagnosed in adolescent populations that would previously have had a terminal prognosis are now survivable due to improved cancer therapies and timely interventions. Although the primary goal of treatment for individuals with cancer is cure and life-long remission, little is known about the relationship between self-efficacy and coping mechanisms in transition from active cancer treatment to survivorship care in adolescent populations.

The improvement in cancer remission rates in children and adolescents led to the development of guidelines that address long-term follow up for survivors of childhood cancers. Guidelines established for follow-up care after cancer remission in adolescents include assessment of short- and long-term complications of cancer therapies; detection of recurrent and secondary cancers; counseling about behaviors such as smoking, diet, and physical activity; assessment of psychosocial adjustment and quality of life; and treatment for any identified late effects of cancer therapy. Although strategies exist to assist children and families with coping after remission of cancer, self-efficacy related to coping skills in adolescents living with cancer has yet to be examined. Adolescents often experience negative emotions related to the fear of uncertainty about long-term survival after cancer remission, yet often report feelings of hope and optimism for the future more than adult cancer survivors. Examining the relationship between self-efficacy and coping mechanisms used by adolescents to transition to survivorship after



cancer can assist health care providers with preventing long-term, negative psychosocial outcomes such as depression and suicide.

## **PROBLEM**

Advances in the health care industry have led to greater number survival rates in pediatric oncology patients. It has been reported that every 1 in 430 adults will have survived pediatric cancer due to advances in early recognition of cancer and more timely, cell specific therapy regimens (Kazak & Noll, 2015). Canning, Bunton, and Robinson (2014) reported that 51 out of 74 pediatric oncology patients experience clinically significant emotional distress. Following a review of the literature on this topic, there appears to be a lack of evidence concerning the relationship between self-efficacy, coping methods, and strategies used to promote better outcomes and improved psychosocial behaviors of adolescents in transition from active cancer treatment to survivorship health maintenance. Exploring the coping mechanisms and preventive care strategies that are used by adolescent cancer survivors to maintain health for long term survivorship is the first step to evaluation. This evaluation examines if a comparison exists with their level of self-efficacy. Gaining an understanding between an adolescent's level of self-efficacy and the relationship to coping and preventive care strategies used for survivorship of cancer can assist the health care team to integrate effective options of therapy and coping to adolescent cancer survivors.

## **PURPOSE**

A review of the literature was conducted to investigate and analyze coping methods and preventive care strategies that adolescent cancer survivors use after remission greater than 5 years. Analysis of the various coping methods and preventive care strategies reviewed are expected to increase understanding about which method is the most effective and if self-efficacy was a factor to maintain health status. The data was collected to compare and contrast why some methods are more effective than others. Lastly, the literature review examined if nurses recommended strategies or preventive care measures that would assist the adolescent cancer survivor with long term health care and maintenance. The results of this review will provide healthcare professionals and nurses with greater insight into the effects of self-efficacy and its influence on coping strategies and preventive care measures that will enable adolescent oncology survivors to flourish as they move into a life remission.

## **METHOD**

The literature collected for this review was from published studies within the past 15 years (2000-2015). The following databases were utilized: Medical Literature On-line (MEDLINE), Cumulative Index to Nursing and Allied Health Literature (CINAHL), PsychInfo, and Education Resources Information Center (ERIC). The articles collected were written in the English or translated into English and peer-reviewed journals. The following search terms were utilized: “oncology\*”, “adolesc\*”, “self-efficacy\*”, “outcome\*”, “coping\*”, and “remission\*”. The focus of the search was to compare and contrast different coping methods that adolescent cancer survivors are using to build self-efficacy.

## **BACKGROUND**

### **Depression and Cancer**

In the United States (U.S.), there is an increasing number of individuals that have cancer. A diagnosis of cancer is rapidly catching up to the number one cause of death in the US, heart disease, for morbidity and mortality. A study, published in the Journal of Pediatric Oncology Nursing, enrolled 56 pediatric cancer participants and asked the children questions related to feelings of well-being and depression (Arabiat, Elliott, & Draper, 2012). The results indicated 20.68% of participants were emotionally depressed or were generally unhappy. The conclusion was that 1 in 11.5 individuals in the study were depressed and had negative feelings about their emotional state (Arabiat et al., 2012). Another study (Recklitis, Lockwood, Rothwell, & Diller, 2006) with a similar outcome recruited 226 adults that survived adolescent cancers. Of those 226 individuals, 29 (12.83%) reported the likelihood of planning and completing suicidal ideations, and also feelings of severe depression more days of the month than not. These mood symptoms were significantly greater than a cross-sectional analysis of the general population that were not cancer survivors. Also reported in the study, 19 (8.41%) of the participants admitted to entertaining and fantasizing the thought of committing suicide. Only 11 of the 226 participants were depressed according to the Beck Depression Inventory (Recklitis et al., 2006). Assessment of the long term effects of cancer survivorship in light of the improving success rate of cancer treatment and drug therapy merits further inquiry. A quote from Shay L. Dawson, a social psychologist from Indiana University Bloomington, brings the whole topic into light in an article written about Camp War Buddies, a camp for pediatric oncology survivors.

Given the potential negative impact on psychosocial functioning and increased survival rates, there is a strong rationale for empirically based studies to examine programming interventions that address the psychosocial needs of patients post traditional medical treatments (Dawson, Knapp, & Farmer, 2012).

### **Coping**

To actively prevent and treat negative feelings and depressive conditions, the adolescent in cancer remission can be taught coping skills throughout therapy and after treatment. A qualitative study was conducted that interviewed 10 pediatric patients after remission of brain tumors (Sposito, Silva-Rodrigues, Sparapani, Pfeifer, de Lima, & Nascimento, 2015). The interview consisted of asking the children their post-illness symptoms and how to cope with those symptoms, while trying to return to day to day activities. The children reported ways they use to cope with surviving their diagnosis of cancer that included: managing themselves, volunteering in their communities, challenging themselves in therapy, keeping up friendships, laughing, and using aids.

### **Self-efficacy**

Transition of care from active treatment to survivorship care in adolescents with cancer involves psychosocial adjustments that develop self-efficacy and coping mechanisms inherent to each individual. Self-efficacy is defined as, an individual's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Self-efficacy beliefs determine how people feel, think, motivate themselves and behave, in certain situations (Bandura, 1994).

Self-efficacy, per Bandura (1994), manifests itself in four different processes: motivation, affective, cognitive, and selection. Motivation is a combination of the individual's effort,

intensity, and tenacity to cope with life events. Affective processes involve the individual's emotions and reactions to what is happening their life. Cognitive processes involve the individual's brain processing and organizing the information. Selection processes are the decisions that the individual actively makes, like a career choice or moving to a different state. Having a strong sense of self- efficacy motivates individuals to pursue difficult challenges, not shy away from them (Bandura, 1994). An adolescent diagnosed with cancer will either build self-efficacy or they may experience consequences of negative outcomes that lead to ineffective coping behaviors. It is the responsibility of nurses and healthcare providers to help adolescents promote and facilitate self-efficacy after cancer remission.

## **RESULTS**

A number of studies were included to investigate coping strategies used by the pediatric cancer population and to determine their effectiveness. These studies also included long term cognitive effects on these survivors that can lead to depression and suicidal ideation. The link between these are important. These studies also investigate at the quality of life and resilience in this population. Additionally, the literature further focuses on the psychosocial health of adolescent cancer survivors. Examining the factors that happen during the active cancer treatment and what progresses after remission is clinically relevant to understanding the psychosocial tools, including coping and self-efficacy available to pediatric cancer survivors.

### **Quality of Life and Psychosocial Health**

In a recent qualitative review, it was reported that out of the children diagnosed with forms of pediatric cancer, 75 percent of them will go into remission and survive (Zebrack & Chelser, 2001). This statistic raises the question about long term uncertainties and life outlook in the future for survivors. In a survey conducted about the worries of pediatric cancer survivors, the top four worries (from greatest worry to least worry) were: worries about their own children developing cancer, worries about developing cancer again themselves, worries about the ability to even have children, and worries about not being as healthy as other individuals their age. With regard to life outlook and self-image, the survivors reported feelings they were: hopeful for the future, expecting to lead a fulfilling and good life, mindful of what was important in life, and happy overall. The findings indicated that female cancer survivors are significantly more positive about life outlook than male cancer survivors (Zebrack & Chesler, 2001).



Bitsko, Cohen, Dillon, Harvey, Krull, Klosky & Harvery (2016) highlighted the fact many adolescent cancer survivors do not experience psychosocial problems and learned to adopt positive coping mechanisms. Suicidal ideation, global distress disorders, anxiety disorders, posttraumatic stress disorder/symptoms, and negative health beliefs were in the top risks for adolescent cancer survivors to develop long term

### **Coping Strategies**

In a qualitative study (Sposito et al., 2015), 10 children were interviewed to ascertain which coping strategy was the most effective in dealing with the chemotherapy process. This study showed the importance of children needing to identify these terms to cope with chemotherapy: the need for chemotherapy, a way to find pleasure, relief, and joy during the chemotherapy process, and to find the hope and perseverance to get through chemotherapy. Even though the side effects are unpleasant and make life difficult, children believed it to be manageable because of the belief that the chemotherapy would cure them. It is that hope and belief that helps these patients cope through the therapy. However, it was determined that an interdisciplinary approach is the best way to tackle the pain and psychosocial implications of chemotherapy. In regards to coping with pain, it was shown that both medications and relaxation therapies helped the children to cope (Sposito et al., 2015).

A study was conducted in Taiwan to observe if psycho-educational intervention during cancer treatment in adolescents can assist with coping skills during and after remission. The participants were assessed at three points during the study: at baseline, at one month, and lastly at three months. The participants were evaluated and assessed using the Pediatric Coping Scale (Wu, Sheen, Lin, Liao, Chen, & Hsiao, 2014). During the education intervention, the adolescents

were asked to: identify stressors during hospitalization, identify their own self-help methods, read modules about coping skills positive thinking, and symptom management; and finally express their feeling and experiences after engaging in positive coping methods. The final analysis revealed that the psycho-educational intervention had no significant difference in coping scores between the experimental group and the control group. However, the experimental group that received the psycho- educational intervention did report lower scores in the pain assessment rankings and in the gastrointestinal clinical manifestations scores. It was also reported that the discussion of disease-related problems and emotional support was vital to the success of the psycho-education intervention group (Wu et al., 2014).

### **Resilience**

Another aspect that needs to be addressed is the cognitive growth that occurs during the adolescent years. A recent study by Chin-Mi, Yueh-Chih, and Tai-Tong (2014) compared the resilience of non-cancer adolescents to brain cancer survivor adolescents. One hundred twenty adolescents without cancer were compared to sixty adolescent cancer survivors. This study illustrated that whether healthy or ‘sick’, the time of growth that characterized the adolescent period is the time for the most cognitive changes in the brain. This change is due to changing hormone balances, biologic changes in the brain, and changes related to puberty. Adolescent brains undergo major changes in cognitive processes related to logic and risk taking, which can be altered due to structural changes in the brain caused by chemotherapy and radiation treatment. Overall, there is no significant difference between resilience and coping rankings in healthy adolescents and adolescents that were cancer survivors. The difference becomes apparent and significant when emotional problems come into the equation. An analysis of a qualitative study

showed that adolescent survivors of brain tumors have less resilience in regards to emotional problems than healthy adolescents with emotional problems.

Some survivors actually report that their cancer strengthened their innate resilience. If a person is an adolescent when they are diagnosed with cancer, they have a greater benefit in terms of resilience in contrast to children under the age of five diagnosed with cancer. The study further suggested that resilience as a coping mechanism in adolescent cancer survivors was formed through the hope, determination, and drive that a terrible situation like cancer can grow into the adolescent individual. It is through these traumatic growth experiences that character is developed (Bistko et al, 2016). Children under the age of five are developmentally unable to process traumatic growth. Therefore, this phenomenon is only seen adolescents.

## DISCUSSION

The lasting effects of cancer and everything that encompasses it persists long after the last scan. It is important to look at all the factors that can affect a positive outlook and survivorship in the adolescent population. In Zebrack and Chesler's (2001) study on cognitive and chemical brain changes through adolescence and cancer, it was shown that there may be some cognitive changes in the adolescent survivors, but these changes should not impact psychosocial skills and traits. However, it is the coping strategies and the journey itself through cancer treatments and remission that lead to a positive outlook and an overall better quality of life.

Examining the quality of life in adolescent cancer survivors, it was reported that survivors feel they have an above average quality of life. The main issue lies with worries about their own health and the health of their children (Zebrack & Chesler, 2001). These health uncertainties and issues show the importance of open communication with a healthcare provider. Having a consistent provider can help ease the concerns and questions about the next step after remission and beyond. This consistency reinforces how coping strategies can help long term with these worries

The most effective coping strategy found in most of the studies reviewed about adolescent cancer survivorship, was the maintenance of hope throughout the cancer and chemotherapy experience. Hope that the chemotherapy and radiation would work and hope that they would survive their cancer diagnosis (Sposito et al., 2015). Most survivors report that the cancer experience made them stronger as a person (Bistko et al, 2016). In a study conducted about psycho-educational coping (Wu et al., 2014), it was reported to be effective. However, it

also helped to manage pain symptoms in these adolescent individuals as well. These psycho-educational modules were reported to be used as tools not only in relation to cancer feelings, but in everyday life. This highlights the impact that education can bring to any health care experience. Education, guided imagery, and visualization have become a powerful tool in healthcare to provide patients with the best experience in procedures. This technique engages all of the senses to walk the patient through certain procedures or through certain emotions. It has been shown to help reduce symptoms during chemotherapy such as fatigue, nausea, and depression (“Guided Imagery”, 2015). Techniques like guided imagery and visualization should be used to implement positive coping strategies in adolescents during cancer treatments as well as after remission.

In regards to resilience and self-efficacy in the adolescent cancer survivor population, there is a type of resilience that can only be obtained through the cancer experience. However, when these adolescents were compared to a group of their peers that were cancer free, it was shown that resilience did not differ. The difference in resilience becomes significant when emotional decisions and experiences are brought into the picture. Adolescents that are currently fighting cancer or are in remission of cancer show a greater resilience in emotional situations than that of their healthy peers (Chin-Mi, Yueh-Chih, & Tai-Tong, 2014). This can equate to the fact that children with cancer either had to endure issues that require greater emotional maturity quicker than their peers or trivial emotional situations do not compare to that of the cancer experience. The use of resilience as a coping strategy which has assisted cancer survivors long-term when fears and doubts enter their minds about their health. Survivors can also be using this resilience in their everyday life to battle the depression that can occur after remission.

## **Nursing Practice**

In the nursing profession, a main goal and objective is education and patient advocacy. Patient education is vital to compliance and success in treatment. In regards to the adolescent cancer population, the nursing staff should be vigilant in teaching coping techniques. Some of the children will spend more time in a hospital setting in a year than in their own home or schools. The nurses caring for adolescents with cancer hold an enormous responsibility to teach their patient positive coping skills. The previous studies suggest that education of coping techniques is best done at the beginning of the cancer journey. The adolescents reported that education helped them deal with the cancer, implications from the therapy, and life outside of cancer and the hospital (Wu et al, 2014).

Through this research and in future research, nurses should be trained on the proper way to educate adolescents with cancer about survivorship coping and be an advocate for help in the psychosocial aspects the family. Proper instruction about coping techniques should become hospital wide with special attention to pediatric cancer units. Providing these nurses with the tools that the need to answer questions about procedures, cancer, life with cancer, what happens after life, and life in remission will give them the confidence to properly care for these patients. If a system wide coping strategy is set into practice, it would make it more streamlined to look at the data and see what needs to be added to the therapy or taken away. Nurses can be at the forefront of this research through their daily interactions with these patients. By educating and supporting the adolescent cancer patients, nurses are promoting resiliency.

## **Limitations**

The most limiting factor to this literature review was the lack of studies on this topic. Due to the poverty of research, studies from other countries were reviewed. Another limitation of the data and studies is the longitudinal nature of the studies that were evaluated. In several of the studies, the participants would have to of agreed to participate for ten plus years after remission. Retention of these individuals for that length of time was difficult. Many of the studies did not collect data related to cognitive growth, psychosocial skills and changes, ability/inability to cope, and seeing the participant's progress long term. The research studies would have been stronger if they would be able to collect data for a longer span of time. Another limitation was actually having the adolescent and their parents agree to do the study. The reason for this hesitation was that they did not want their children to be in a research study (Wu et al., 2014).

## **Implications for Further Research**

This literature review highlights the need for further research on the topic of evaluating coping strategies and psychosocial issues in adolescent cancer as they transition from active cancer care and treatment to long term survivorship. There are few studies on the effects of self-efficacy and coping strategies on the long term survivorship of the adolescent patient in remission. There is a paucity of research on long-term cognitive changes that occur in the brain and the effects on thought process. The lack of research comes from the new advances in drug therapy and cancer treatment that have changed the life expectancy of pediatric cancer survivors. It would be beneficial to look at the effects of cancer on the body of adolescents as they grow into adulthood. There is also a lack of psycho-behavioral research about whether or not healthcare providers are promoting coping strategies and exploring mental health issues during

treatments for cancer in the hospital and follow up after acute care visits. It is vital to know what adolescents are being taught and the messages conveyed before, during, and after cancer about coping strategies. Research specifically directed at which coping strategies are the most beneficial to the adolescent cancer survivor on a short-term and long-term scale would be useful at promoting interventions that address these challenges. In addition, research should be done on the demographics of adolescent cancer survivors and the relationship between preventive health behaviors later in life. Gender outlooks and resiliency would be another area to explore. Research that explores the areas of emotional support and emotional expression and their correlation to a positive outlook after remission would be beneficial to assisting with targeted, psychosocial support.



## **CONCLUSION**

Assessment of coping strategies and techniques are vital to any provider that has contact with adolescents that have survived a cancer diagnosis. It is a vital element to address in the adolescent population that is diagnosed with cancer, fighting cancer, or in remission of cancer. Coping skills, particularly the level of resilience an adolescent possesses, following cancer remission have been shown to be crucial to maintain health and having hope for a future life without cancer. However, some survivors have difficulty with the psychosocial aspect of survivorship of cancer. Further research needs to be conducted on how to instill better coping strategies, self-efficacy, and resilience in adolescent cancer survivors. Preventive health is starting to become the forefront of conversation in regards to long-term survivorship of pediatric cancer. Proper education on coping is vital to the adolescent's treatment, recovery, and mental health long after the cancer is gone.

## **APPENDIX: TABLE OF EVIDENCE**

Table: Table of Evidence

<b>Author(s) Year Location</b>	<b>Study Design and Purpose</b>	<b>Sample Size</b>	<b>Intervention Protocol</b>	<b>Screening Measures</b>	<b>Key Findings and Limitations</b>
Zebrack & Chelser 2001 <i>Los Angeles, California</i>	Qualitative data collected to understand and characterize pediatric cancer survivors worries post remission.	N=303	This data was collected via self-reported questionnaires and medical records.	The 493 participants were randomly selected. They had to be between the ages of 14-29 when they went into remission of cancer. The surveys were mailed out, and 303 people responded. The surveys used scales and series of items to gauge worries.	Key findings in this study include survivors saying their top worries were: the ability/inability to conceive children, the likelihood of developing cancer again, and the risk of their own children developing cancer. The female participants reported a positive outlook on life significantly more than the male participants. A major limitation of this study include the bias of the

					participants that answered the survey. Also, the methods of measuring worries and outcome are not standardized.
Bitsko, Cohen, Dillon, Harvey, Krull, Klosky & Harvery 2016	This review was conducted to evaluate the rate and appearance of psychosocial issues in pediatric cancer survivors after remission.	N=35	The review used the Children's Oncology Group Long-Term Follow-Up (COG LTFU) Guidelines 3.0 to guide their study. The identified areas were depression, global distress, anxiety, developmental barriers, and positive growth and resilience.	This review looked at articles from August 2009-January 2011. Thirty-five articles were chosen that included: randomized controlled trial, observation designs, nonrandomized controlled trial, meta-analytic articles, nonexperimental design, and expert opinion.	This review showed that most pediatric survivors do not show significant signs and symptoms of psychosocial problems. However, this population is at an increased to develop these issues. More importantly, there will be a subset of pediatric cancer survivors that will experience psychosocial problems such as suicidal ideation and global distress.

					Limitations of this review include: lack of current findings and narrow timeline.
Sposito, Silva-Rodrigues, Sparapani, Pfeifer, de Lima, & Nascimento 2015 <i>Sao Paulo, Brazil</i>	Qualitative methods used to analyze the coping strategies used during hospitalization of pediatric cancer patients.	N=10	This exploratory study was conducted to use inductive thematic analysis to analyze coping strategies during chemotherapy hospitalizations.	Children ages 7-12 were interviewed using puppets.	Findings show that the most beneficial coping strategies used by the pediatric population during hospitalizations include keeping hope alive, engaging in fun and entertaining activities, understanding the process and need for chemotherapy, and engaging in pain management. Limitations in this study include the small participant size and different timing of interviews

					during the chemotherapy process.
Wu, Sheen, Lin, Liao, Chen, & Hsiao 2014 <i>Kaohsiung City, Taiwan</i>	A qualitative study evaluating effective coping strategies via the use of psycho-educational interventions to develop self- efficacy.	N=61 Experimental group (n=30) Control group (n=31)	The study used three surveys to determine self-efficacy growth from the psycho-education during chemotherapy treatments.	The participants were placed into two groups: the control group who received standard care and the intervention group who received the psycho-education. All participants were surveyed at three points in time: beginning of treatment, one month of treatment, and three months of treatment. The survey assessed the patients based off of the pediatric cancer coping scale.	While no significant differences were found in coping between the two groups, the intervention group reported positive feelings about the psycho-education. The intervention group also reported significantly lower symptoms of pain and gastrointestinal problems. Limitations in this research include difficulty in recruitment of patients for this study, conversations between groups about the experimental

					treatments, and selection bias based off of the monetary incentive to participate in the study.
Chin-Mi, Yueh-Chih, & Tai-Tong 2014 <i>Taipei, Taiwan</i>	Qualitative methods used to compare resiliency of healthy adolescents to that of adolescent cancer survivors.	N=180 Survivors (n=60) Healthy adolescents (n=120)	The adolescents were asked to answer a structured questionnaire regarding resiliency in life situations.	The sampling of 13- 18 year olds were in a cross-sectional case study. The study was conducted with 60 adolescent brain tumor survivors and 120 healthy adolescents. The questionnaire created the data.	Compared in resiliency, the two groups do not have a significant difference. In both healthy adolescents and cancer survivors, resiliency can be hindered during emotional problems. Limitations include the self-report of resiliency could have bias in it. The design of the cross sectional study could have limited the exposure of differences in resiliency between healthy

					adolescents and cancer survivors.
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