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Promotion of Early Recognition of Depression to Improve Health Related Quality of Life in Pediatric Oncology Patients

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Abstract

Background: Depression and anxiety are serious complications of cancer and deemed a challenging diagnosis due to the symptoms of depression mimicking common side effects of chemotherapy and radiation. Signs/symptoms frequently are underrecognized thus appropriate treatment is delayed, compromising the health-related quality of life (HRQOL) for pediatric oncology patients.

Purpose: Analyze existing physician and Advanced Practice Provider (APP) clinical practice regarding depression, via a pre- and post-survey and educational PowerPoint on the use of the Center for Epidemiological Studies Depression Scale for Children (CES-DC) to promote early recognition of depression.

Methods: A prospective, single-arm, study was completed in the Kentucky Children's Hospital DanceBlue Clinic (DBC). Surveys were distributed to physicians and APPs. Pre- and post-surveys via Qualtrics along with an educational PowerPoint was used to analyze clinician knowledge, clinical practice, and barriers.

Results: Out of twelve participants, eight completed the pre- and post-survey; four were Physicians and four were APP. Following the educational PowerPoint, a statistically significant increase in perception of the need to screen every patient with a standardized depression screening tool was observed (75%). A majority were willing to make the practice change (75%), and most recommended the CES-DC (87.5%).

Conclusion: The results of this study warrant the need for the use of a standardized depression screening tool, with the CES-DC as the preferred tool, in the pediatric oncology population. The future intentions to screen every patient upon clinic visit and hospital admission could not be analyzed.

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I would like to express my sincerest gratitude to several people that have helped me complete this project and supported my efforts to obtain my DNP. First and foremost, I would like to thank my advisor, Dr. Misty Ellis. She has been a rock throughout this program and has motivated me with her guidance, encouragement, patience, and positivity. I would like to thank my clinical mentor, Caryn Sorge MD, and my committee member, Dr. Andrew Makowski, for their shared interest in my project and interest in the mental health of pediatric oncology patients. They have encouraged my efforts to improve the health-related quality of life within the pediatric oncology population.

Without the Chief of the Division of Hematology/Oncology Department of Pediatrics, John D'Orazio, MD, PhD, and Research Protocol Manager, Tammy Taylor, MSN, RN, this study would not have been feasible. I want to offer my appreciation for their support and encouragement. I would also like to thank the pediatric oncology providers in the DanceBlue Clinic that participated in the success of my study. I offer my gratitude to Dr. Hampton, faculty advisor, and mentor to me as a student throughout my DNP program. Finally, I would like to acknowledge Dr. Amanda Thaxton-Wiggins for her knowledge, expertise, and constant support in her role as a statistician for my DNP study to succeed.

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Dedication

This project is dedicated to my dearest family including, my son, Oliver William, father, Richard, my mother, Brenda, two sisters, Kristen and Courtney, and my brother in-law, Alex. Their constant reassurance and encouragement have helped drive me to complete this three-year doctoral program. Without the unconditional love and guidance from my family, I would not be the successful, ambitious woman, I am today. I have always aspired to pursue the highest level of education within my career, and though it has not always been easy, nor convenient, my family was right there every step of the way. I hope my son will look back and view this achievement as an inspirational lesson to never give up on his personal, professional, and educational goals. I would also like to dedicate my research and success of this project to the pediatric oncology population. I have always held a place in my heart for these kiddos, more specifically the ones that are unable to advocate for themselves. I strive to make a positive difference in the mental health of these patients to better their health-related quality of life. Moreover, I want them to know they are seen, heard, and advocated for in their darkest of times. I will continue to be one of their biggest cheerleaders.

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Background and Significance

Introduction to Problem

Pediatric cancer is an emotionally devastating, life threatening, and feared diagnosis. The treatments accompanying a cancer diagnosis along with the comprehensive understanding of the life altering disease can be a heavy emotional and physical burden to both the patient and their family. According to the American Cancer Society (2022), approximately 10,470 children younger than 15 will be diagnosed with cancer in the United States in 2022. Fortunately, diagnostics and treatment interventions have advanced dramatically in recent decades, resulting in a five year or more survival rate in 85% of children with cancer (Langer et al., 2018). This is a significant increase from the 1980s when only 65% of children had a five-year survival rate (Kaatsch, 2010). Despite cancer survival and remission, evidence shows that transitioning back to typical child-like behaviors amongst peers is often a long and difficult journey for pediatric patients, and many report overall decreased well-being (Kaplan et al., 2013). Laypersons and oncologists now implicate psychological functioning in the prediction of cancer outcomes. In consequence, the field of psycho-oncology has experienced exponential growth (Levin et al., 2006).

Emotional distress is an indicator of suffering as well as a predictor of poor health and negative quality of life among children and adolescents with cancer (Yardeni et al., 2021). Common illnesses such as depression and anxiety are serious complications of cancer, but they are often neglected, compromising the mental health of pediatric oncology patients and influencing their Health Related Quality of Life (HRQOL), treatment adherence, survival rates, and long-term financial burden (Smith, 2015). Pediatric psycho-oncologists deem depression a challenging diagnosis, as the symptoms of depression e.g., restlessness, decreased appetite, low energy level, fatigue, and altered neurological status can mimic the common side effects of chemotherapy and radiation (Ruland et al., 2009).

Context, Scope and Consequences

Depression is defined as a two-week period of depressed mood or the loss of interest of pleasure in nearly all activities for most of the day nearly every day (APA, 2022). Symptoms are characterized as lack of interest in daily activities, sad thoughts, melancholy behavior, changes in sleeping pattern, appetite changes, irritability, suicidal ideation, thoughts of self-harm, and disinterest in the world around the patient (APA, 2022). Cancer-related depression is a pathologic affective response to the loss of normalcy because of a cancer diagnosis, treatment, or complication (Çavuşoğlu, 2001). Although depression symptoms vary from mild to severe, it is treatable and when diagnosed early, it can be manageable with pharmacotherapy and noninvasive methods such as psychotherapy (APA, 2022).

Children with cancer have a high risk for depression because they are living continuously with a stressful and sometimes life-threatening illness (Çavuşoğlu, 2001). Long-term or high levels of psychological stress activate the hypothalamus-pituitary-adrenal axis, causing a release of psychological symptoms that warrant a depression diagnosis (Smith, 2015). Greater than 70% of oncologists and 85% of cancer patients believe there is a strong correlation between mood and mental well-being on the progression of cancer (Statin et al., 2009). Furthermore, the correlation between poor recognition of depressive symptoms and the adherence to a cancer treatment regimen leads to nonadherence throughout the cancer trajectory, decreased HRQOL, and survivorship (Pitman et al., 2018).

Depression does not discriminate; it can affect anyone regardless of their circumstances. Several factors are known to play a role in depression including biochemistry, genetics, personality, and environmental factors (APA, 2022). Few risk factors assumedly identified among pediatric cancer patients are suggestive of depressive diagnostics, including self-blame for diagnosis, functional limitations, body dysmorphia, and lessened autonomy (Else-Quest et al., 2009). Evidence suggests integrating multidisciplinary depression interventions into cancer care as a means of addressing inadequate treatment and achieving confidence and esteem for patients' mental and physical needs (Pitman et al., 2018). According to Stanton et al. (2018), if a patient has a prior history of mental illness

or specifically experienced a depressive state, that patient is more likely to experience depression post cancer diagnosis.

Current Evidence-Based Interventions

The National Comprehensive Cancer Network (NCCN) convened the first Distress Management (DM) Panel in 1997, producing the first DM Guidelines (NCCN, 2022). The current NCCN DM Guidelines define distress broadly as "a multifactorial unpleasant experience of a psychological, social, spiritual, and/or physical nature that may interfere with the ability to cope effectively with cancer, its physical symptoms, and its treatment" (NCCN, 2022). The NCCN standard for DM includes: 1) Recognizing, monitoring, documenting, and treating distress promptly at all stages of disease; 2) Identifying the level and nature of distress; 3) Screening for distress at every medical visit or regular intervals; and 4) Assessing and managing distress according to clinical practice guidelines. The objective of systematic DM is not only to identify patients experiencing distress but also to address identified symptoms and needs by implementing evidence-based interventions with demonstrated efficacy (Jacobsen, 2009). Educating and familiarizing clinicians to a depressive screening tool and implementing the correct type of treatment and resources is essential to improving depression in pediatric oncology patients.

In the ensuing years, more organizations have called attention to the importance of monitoring the psychosocial well-being of individuals with cancer. In 2007, the National Academies of Science, Engineering, and Medicine (formerly the Institute of Medicine) advocated routine assessment of the psychosocial needs of patients with cancer as a standard of care (Page & Adler, 2008). In 2009, the American Society of Clinical Oncology (ASCO) incorporated the assessment of patients' emotional well-being into the Quality Oncology Practice Initiative standards (Neuss et al., 2005). In 2012, the American College of Surgeons Commission on Cancer (CoC) identified distress screening as an essential part of quality cancer care (ACOS, CoC, 2012). In 2015, psychosocial distress screening became an accreditation standard for the CoC, providing the first critical step toward universal adoption of DM practices (CoC, 2015). The CoC accreditation standard includes general requirements regarding timing, methods, and

tools for screening, follow-up assessment and referral for positive screens, as well as documentation of screening results.

The American Psychosocial Oncology Society (APOS), the Association of Oncology Social Workers, and the Oncology Nursing Society issued a joint statement of recommendations for distress screening in 2014 (Pirl et al., 2014). These recommendations included: Adoption of the NCCN definition of distress, selection and use of validated screening instruments following published threshold values and ranges, use of screening instruments that are focused broadly on components of distress (vs one particular symptom), screening at multiple time points, screening results to be communicated to and reviewed by the patient's treatment team in a timely manner, follow-up of positive screens by a trained clinician who can differentiate causes of distress and ensure appropriate referral, and inclusion of referrals for the assessment and management of distress as part of a patient's routine medical care.

Purpose and Objectives

The purpose of this DNP Project was to evaluate the DanceBlue Clinic's (DBC) physicians and Advanced Practice Providers (APPs) knowledge of the Center for Epidemiological Studies Depression Scale for Children (CES-DC), analyze their clinical practice pertaining to depression in pediatric oncology patients, and determine if the DBC utilized a DM protocol.

The four aims of this study included:

1. Provide education to Physicians and APPs at the University of Kentucky's Pediatric DBC regarding the importance of early recognition of depression among pediatric oncology patients and the CES-DC via a voiceover educational PowerPoint.
2. To evaluate knowledge of the CES-DC and compare clinical practice of the use of the CES-DC, via a pre- and post-educational survey.
3. To determine professional barriers associated with performing depression screening pre- and post-PowerPoint presentation.
4. To encourage a clinical practice change by standardizing a depression screening tool within the DanceBlue Oncology Clinic, used with every patient during their treatment.

Theoretical Model

The theoretical framework that guided this project was the Iowa Model. The model serves as a pathway to evidence-based practice (EBP) by providing a seven-step process to help identify issues or knowledge focus triggers, provide quality research solutions, and implement changes (Iowa Model Collaborative, 2017). The Iowa Model was a good fit for the early recognition of depression protocol practice change via a standardized depression screening tool because of the emphasis on quality research and EBP implementing a clinical practice change within a hospital. The concepts adapted from the Iowa Model for this project include the systematic stepwise approach: identify the problem, conduct research, and bring light to the most relevant literature, critique the sought-out literature and evidence, and determine if there is sufficient evidence to create a practice change (Brown, 2014). Depression among pediatric oncology patients was identified as the problem. The following steps were to implement the CES-DC as the practice change, monitor the effectiveness of the practice change, then determine if the practice change could be officially adopted and disseminated into clinical practice. For the overall goal to implement a standardized depression screening tool as well as to hire a psychologist to the oncology care team, the primary investigator (PI) needed to evaluate two questions: First, what are the psychological consequences of depression in pediatric oncology patients? Second, what is the importance of early recognition and treatment of depression? This framework was used as a guide to build a proper EBP clinical change regarding early recognition of depression in pediatric oncology patients.

Review of Literature

A literature review was conducted to address the following research question: Do pediatric oncology patients who are screened and treated for depression early in their treatment, compared to those pediatric oncology patients who are only screened for depression after showing physical signs of depression later in their treatment regimen have a better HRQOL? When searching the PUBMED database, CINAHL database, and PSYCHINFO database, the mesh terms “children” AND “depression” AND “cancer” AND “CES-DC” AND “screening” AND “oncology” yielded 2,746 articles. Free full text, human species, and publications within the last 10 years (2010-2020) limited the results to 519. Results

were limited further, yielding 141 results when applying journal articles and clinical trials. Of those 141 articles, six were chosen to review based on relevance to interventions and depression in pediatric oncology patients. Through these six articles, ancestry searching was applied, and seven more articles were inclusive due to the relevance of the subject matter. English, free full text, human species, children subject, article for the resource type, and peer reviewed concluded to 25 articles that best fit the narrowed topic (see Table 1).

Synthesis of Evidence

Many cancer patients and survivors suffer from psychological problems, such as depression. The most common forms of emotional distress are depressive and anxiety disorders that affect about 25% to 35% of this population (DeJong et al., 2006; Hedström et al., 2005; Kunin-Batson et al., 2016; Sawyer et al., 2000; Yardeni et al., 2020). Similar rates were found in a previous study demonstrating that in cancer patients aged 7–21 years 37.4% met the DSM-5 criteria for depressive and/or anxiety disorders (Yardeni et al., 2020). This may interfere with the patient's ability to cope with the burden of the illness, and it may decrease acceptance of treatment, extend hospitalization, reduce quality of life, and increase suicide risk (D'Souza et al., 2019; Esmaeeli, 2014).

Evidence of depression among pediatric oncology patients (Bamonti et al., 2018; Gordijn et al., 2012; Mattsson et al., 2019), proves similarities between depressive symptoms and the side effects of cancer and the associated treatments (Linden et al., 2012). Given that depression increases the risk of mortality, patient suffering, and healthcare expenditure in pediatric oncology patients (Geue et al., 2018; Gordijn et al., 2012; Mitchell et al., 2011), it is imperative to recognize depressive symptoms early and intervene after the initial diagnosis (Bamonti et al., 2018; Cavuşoğlu, 2001; D'Souza et al., 2019; Linden et al., Lemon et al., 2004; Kalter et al., 2018).

Dismissed depressive symptoms can lead to increased depression scores on the CES-DC throughout the trajectory of cancer treatment (Bamonti et al., 2018). Therefore, screening patients immediately after the initial diagnosis and continuation screening, can lead to higher quality of life and health outcomes (Bamonti et al., 2018; Brintzenhofe-Szoc et al., 2009; Cavuşoğlu, 2001). The following

months leading up to the one-year mark, post initial diagnosis of cancer, can be the most detrimental time for pediatric patients regarding depression and quality of life. Considering the high rates of anxiety and depression among children with cancer, the American College of Surgeons Commission on Cancer, the Institute of Medicine, the American Cancer Society, and the NCCN require that cancer treatment centers implement screening programs for psychosocial distress of patients as a new criterion for their clinical accreditation (Meyers et al., 2014; Lazor et al., 2019).

Two studies (D'Souza et al., 2019; Esmaeeli et al., 2014), examined the coping strategies used among pediatric oncology patients at various times throughout the first year of treatment. The coping strategies were based on primary coping (positive reinterpretation, emotional processing, problem-focused coping, and seeking social support), secondary coping (positive thinking, acceptance, cognitive thinking) and disengagement coping (avoidant-approach, denial, wishful thinking). Both studies found a significant correlation between disengagement coping and increased depression scores with slower recovery time than those who practices primary and secondary coping with lower depression scores and faster recoveries.

Although evidence supports the increased risk of depression among pediatric oncology patients in comparison to healthy children (Barker et al., 2019; Gordijn et al., 2012; Mitchell at al., 2011), not all studies support these findings. Peikert et al. (2018) found depression had little to no more significance amongst oncology patients than it had among healthy children, suggesting that although mood disorders occur in 30-40% of patients in a hospital setting, clinicians should remain aware of more significant mood complications other than depression.

Two studies (Barker et al., 2019; Lemon et al., 2004), found that although there is an increased prevalence rate among pediatric oncology patients; age, gender, and environmental factors have a significant effect on depression scores. Barker et al. (2019) and Compas et al. (2014), recognized that children, adolescents, and young adults to have six times higher risk of depression compared to the general population; however, female gender and other life limiting chronic conditions such as HIV and thalassemia had greater prevalence of depression than those of males in the oncology population. Lemon

et al. (2004) found maternal distress to be the number one factor causing increased depression in pediatric oncology patients 1-6 years of age and 13-17 years of age. It is important to note that although these studies recognize a correlation between external factors and increased depression scores, they do not negate the need for early detection with interval screening throughout the first year of treatment as a core aspect of care and support offered to pediatric oncology patients.

Moreover, early detection and frequent use of a standardized screening tool for depression provides valuable guidance for anticipatory psychiatric interventions, as those children are more likely to need extra psycho-oncological support (Barker et al., 2019; Lemon et al., 2004; Gordijn et al., 2012; Brintzenhofe-Szoc et al., 2009). This is important information to healthcare professionals in the clinical setting and validates the clinical significance of patient/family centered care. Kalter et al. (2018) suggest that lower depression levels in pre-school children up to seven years of age is due to the lack of cognitive awareness and understanding of their illness and the inability to recognize the difference between themselves and other children.

Identification of Knowledge Gaps

Managing distress in patients with cancer is well documented as an important component of evidence-based approaches to optimizing cancer outcomes and is a key component of patient centered cancer care. DM refers to the comprehensive system that includes screening, assessment, triage, intervention, and outcome monitoring related to patient distress (APP, 2022). The practice of DM involves proactive use of patient-reported outcomes to identify and triage distressed patients with specific care needs to appropriate supportive care services for relevant evidence-based intervention. Over 20 years ago, the NCCN proposed DM to facilitate the delivery of evidence-based psychosocial support services to patients across the continuum of cancer care: diagnosis, treatment, posttreatment survivorship, advanced disease, and/or end of life (Deshields et al., 2021).

In recent years, multidisciplinary cancer care teams have developed specific distress screening tools to effectively and systematically measure distress experienced by patients with cancer. In addition, clinical researchers have developed and tested novel and effective interventions to promote adherence to

therapy, enhance shared decision-making, and improve patients' symptom management, quality of life, and long-term survival (Faller et al., 2013). Despite these advances, many patients do not receive needed services, which may reflect ineffective screening, such that those with the greatest need are not identified (Ernstmann et al., 2009).

This gap in care is likely associated with variability in the extent to which DM procedures are implemented across and within cancer programs and specialty departments. In addition, professional/institutional responses to positive screens have lacked systematization and utilization of evidence-based interventions (Deshields et al, 2021). Within the DBC, there was a lack of consistency and knowledge among the physicians and APPs regarding an existing screening tool as well as a universal practice/protocol. The inconsistency is not uncommon due to existing guidelines, recommendations, and accreditation standards for DM lacking detailed implementation guides and consistency (NCCN, 2020; Carpenter et al., 2022; Blinder et al., 2022). For example, the CoC accreditation standards for patient-centered care generally do not state when, how, or how often to screen and respond to patients' psychosocial needs (Blinder et al., 2022). As a result, cancer treatment centers across the United States have implemented DM protocols that vary widely in screening characteristics, including instrumentation, periodicity of assessments, and procedures for responding to positive screens (Mirosevik, 2019; Zebrack et al., 2018). This lack of consistency within the United States (and across the world) contributes to variations observed in clinical practice outcomes related to the implementation of DM protocols and complicates the interpretation of research results across studies that are geared toward understanding and better managing this issue (Mirosevik, 2019; Zebrack et al., 2018).

Addressing the Gaps

Standardized depression screening tools are instruments relevant to the treatment of depression. Initial assessments of depressive symptoms can help determine possible treatment options, and periodic assessment throughout care can guide treatment and gauge progress (Scaraceno et.al., 2018). Providers can detect early signs of depression once implementing a standardized screening tool into the continual intervention treatment plan for pediatric oncology patients, thus beginning treatment for depression

quickly if warranted. Once they have diagnosed depression, clinicians may use effective psychotherapy which is shown to reduce distress and suffering, help patients to build effective coping strategies used for treatment and illness stressors, provide a support system, and help facilitate HRQOL (Vodermaier et al., 2009).

The incorporation of DM protocols such as implementing a standardized screening tool, can aid cancer centers to bridge the gap from screening to provision of evidence-based psychosocial oncology care. Adherence to DM protocols in cancer care can improve patients' quality of life, reduce distress, reduce anxiety and depression, achieve medical cost offsets, reduce emergency department visits and hospitalizations, and is associated with improved survival through biobehavioral mechanisms (Faller et al., 2013; Schneider et al., 2010; Carlson et al., 2010; Duarte et al., 2015; Zebrack et al, 2017; Lutgendorf et al., 2015).

The frequency of screening represents another point of variability in screening practice. The NCCN guidelines have specified the aspirational goal of screening every patient/every visit as a component of patient-centered care, but many institutions struggle with the logistics and resources associated with screening at every visit (NCCN, 2019). CoC guidelines specify that patients should be screened once during their first course of treatment (ASCO, 2020; Deshields et al., 2021). The latest Quality Oncology Practice Initiative Certification Program Standards (Standard 1.4) require screening and intervention with each cycle of chemotherapy (Zebrack et al., 2018).

Methods

Design

The DNP project was a prospective, single-arm, pre- and post-design to test the effectiveness of an educational intervention on the knowledge and use of a standardized depression screening tool.

Setting

This DNP project was performed at the University of Kentucky Children's Hospital in Lexington, Kentucky (UKCH). UKCH is a designated Magnet, academic medical center in the United States. The DanceBlue Kentucky Children's Hospital Hematology/Oncology Clinic within UKCH is a designated

cancer center that offers comprehensive pediatric hematology and oncology services provided by a multidisciplinary team of experts.

Project Congruence

A priority in this project was to align with the philosophy and innovation value in UK Children's Hospital values: Diversity, Innovation, Respect, Compassion, and Teamwork. The Innovation value embraces continual learning and improvement to drive positive change and outcomes. This study had no effect on employment of performance evaluations for DBC physicians and APPs, nor an allotted budget.

Stakeholders

Stakeholders within the Doctor of Nursing Practice committee consisted of chair member, Dr. Misty Ellis, clinical mentor, Caryn Sorge, MD, and faculty mentor, Dr. Andrew Makowski. Additionally, in support of this study was Chief of the Division of Hematology/Oncology Department of Pediatrics, John D'Orazio, MD, PhD, and Research Protocol Manager, Tammy Taylor, RN, MSN. Other University of Kentucky stakeholders consisted of the oncology treatment team for their time and commitment, administrators' buy in, along with data and statistical analysis support from Dr. Amanda Thaxton-Wiggins.

Sample

A convenience sample was recruited through the DBC identifying APPs and Attending Physicians employed at the DBC. Inclusion criteria included: a.) Physician and APP b.) Employee of DanceBlue Kentucky Children's Hospital Hematology/Oncology Clinic. Exclusion criteria included a.) Medical professionals other than physician or APP, b.) Medical students and APP students, c.) Physician or APP from a different unit other than DBC and 4W, d.) Pediatric patients without an oncological/Hematological diagnosis, e.) Pediatric patients under the age of five and over 21, f.) Pediatric patients not being treated by the DBC Treatment Team.

Procedure

Approval for this study was granted from the Institutional Review Board (IRB) affiliated with the University of Kentucky Medical Center IRB. Approval was also granted by the Chief of the Division of

Hematology/Oncology Department of Pediatrics through the facility's Research Protocol Manager. Physicians and APPs were then contacted via their @uky.edu e-mail containing the informed consent cover letter and an electronic invite to participate in the linked study (see Appendix 1). The following steps were completed to successfully analyze the study's intervention: a.) Qualtrics pre-survey (see Appendix 2), b.) An educational voiceover PowerPoint containing information from EBP literature on depression, early recognition of depression, standardized depression scales, and the CES-DC (see Appendix 4), c.) Two weeks past the initial invite to the electronic pre-survey, the PI sent out an additional e-mail inviting DBC physicians and APPs to participate in the post-educational survey, only for those who participated in the pre-survey and educational PowerPoint, via their @uky.edu e-mail (see Appendix 3)

Measure/Instruments

The style of questions on the pre- and post-survey included multiple choice, select all that apply, and free form. Non-identifying demographic information was collected in both the pre- and post-surveys including a.) Professional role, b.) Number of patients cared for in a day, and c.) Age range of patients cared for in day. Participants were also asked on both the pre- and post-survey if they 1.) Had knowledge of a depression protocol and screening tool within the clinic, 2.) If it was in their clinical practice to use a depression screening tool, 3.) Knowledge of barriers to screening patients, 4.) Knowledge of the CES-DC, and 5.) Knowledge of gaps related to depression in the pediatric oncology patient population.

In both the pre- and post-surveys, participants were asked to answer, "When a patient is presenting with depressive symptoms do you…select all that apply" with the following options: a.)Refer to the licensed social worker, b.) Refer to child life, c.) Refer to Oncologist, d.) Refer to APP, e.) Refer to child psychologist, f.) Perform a depressive screening tool, g.) Treat patient for depression with medication, h.) Talk with patient about signs/symptoms and recommend outlets for stress and feelings/thoughts, and/or i.) Assume it is related to their cancer diagnosis and reassure patient it is common, but do not diagnose depression or treat depression.

The educational PowerPoint topics included: The definition and background information on depression, risk factors, importance of screening early, standardizing a depression screening tool, the innerworkings of the CES-DC (see Appendix 4), and the advantages of the use of the CES-DC.

Following the educational PowerPoint, the post-survey assessed the likelihood of using the CES-DC in clinical practice by asking if there was a clinical practice change made regarding depression. The post-survey also asked the participants if they encountered any barriers when implementing the CES-DC and if they observed any knowledge gaps once learning about the CES-DC (see Table 3 and 4). For future research replication purposes, participants were asked their opinion on the educational PowerPoint and if they would choose to implement the CES-DC in clinical practice.

Data Collection

Participants were provided a unique link by email to access the surveys, participate in the study, and to preserve anonymity. Qualtrics was used to collect data, for which UK has a license. The first question on the pre- and post-survey contained an anonymous one-question identifier limited to a color and a set of four-digit numbers (ex: GREEN-1055). This unique identifier allowed for pairing pre- and post-intervention surveys. No identifiable data were obtained nor reported in this study.

Data Analysis

Statistical analysis was performed using IBM SPSS, version 26. Descriptive analysis was used to summarize participant characteristics. Changes in pre- and post-survey items were analyzed using McNemar's test. An alpha level of .05 was used to determine statistical significance.

Results

Demographics

A total of twelve professionals were invited to participate in the study over a period of two months. Eight were enrolled (67% response rate), and eight participants completed the pre- and post-survey. Among respondents, 50% were Physicians and 50% were APPs (see Table 2). The majority of participants reported treating five to ten patients in one day (87.5%), while fewer reported treating 10-15 patients in a day (12.5%). Of those patients seen in a day, half reported zero to four patients between the

ages of 5-21 years, and the other half were treating five to ten patients in a day between the ages of 5-21 years.

Findings

When comparing the pre- and post-survey responses, there was no statistically significant improvement in the number of patients screened in the clinic between the ages of 5-21 for depression (see Table 4). The pre-survey percentage of participants that did not screen every patient in the clinic 5-21 years of age was 87.5% (*n*=7), and the post-survey score was 87.5% (*n*=7). The increase in the number of participants that attempted to screen more patients, but not every patient on the post-survey improved by half (*n*=4). Participants (12.5%) subjectively reported that, "Every child diagnosed with cancer should immediately have a referral to a child psychologist who can work collaboratively with that team throughout each patient's treatment course." Additional subjective data reported by 12.5% of participants (*n*=1) stated, "Would love to see us develop a more standardized approach to depression screening, but it needs to have a small footprint that doesn't interfere with provider efficiency."

There was no statistically significant improvement in the belief that there is a gap in recognizing early signs/symptoms of depression in pediatric oncology patients (p=.50). The pre-survey response was 87.5% (*n*=7) and the post survey response was 62.5% (*n*=5). Among the participants who believed there was a gap in treating depression in pediatric oncology patients on the pre-survey (*n*=7), only 62.5% (*n*=5) believed there was a gap on the post-survey, thus indicating there was no statistically significant improvement in recognizing the gap in treating depression in pediatric oncology patients (p=.50; see Table 4).

When comparing the pre- and post-survey, it was within 37.5% of participants practice to treat patients for depression without performing a depressive screening tool on the pre-survey (*n*=3), and 0.0% on the post-survey (p-value for McNemar's test is not estimable since all responded no on the post-education survey). It was reported on the pre-survey that 62.5% (*n*=5) would refer to a Social Worker, 12.5 (*n*=1) refer to a child Psychologist, 25.0% (*n*=2) would treat with medication, and 25.0% (*n*=2) would also talk about signs/symptoms and recommend safe outlets/resources (see Table 2). On the post-

survey, there was more of a universal answer among the eight participants with 62.5% referring to a Social Worker (*n*=5) and 37.5% would talk about signs/symptoms and recommend safe outlets/resources (*n*=3; see Table 3).

Of the physicians and APPs that participated in the pre-survey (*n*=8), three-quarters reported barriers to screening every patient between the ages of 5-21 years of age (75.0%). One participant (12.5%) subjectively reported "Clinical focus is often on acute measures to sustain life, while screening for psychosocial issues can become secondary." Additionally stated by 12.5% of participants (*n*=1), "Barriers to screening are time and lack of expertise. Most of us feel comfortable identifying when a child is struggling with depression and starting initial therapy. If there are other complications/multiple medications or if there is something not straightforward about it then we usually consult psych to get involved."

Among the participants (*n*=8) who provided data in the post-survey after reviewing the educational PowerPoint, only 37.5% attempted to use the CES-DC (*n*=3), and three-quarters recommended screening every patient in the clinic and oncology patient admission to 4W (75%; *n*=6). Additionally, 87.5% of participants recommended the CES-DC on the post-survey (*n*=7), and 75% (*n*=6) were willing to make the practice change (See Table 3).

On the post-survey, 62.5% of participants (*n*=5) subjectively reported in the questions, concerns, and comments box. 12.5% (*n*=1) of participants asked, "Could this form be built into Epic? Is it available in multiple languages?" 12.5% of participants (*n*=1) stated, "Every oncology patient should have screening at every visit. I would like to see our clinic standardize the way we screen patients. Thank you for your very informative presentation." 12.5% (*n*=1) of participants stated, "MD doesn't have time to do depression screen. also feel like having a patient fill out a depression screening tool every single time we interact with them is a little over kill." 12.5% (*n*=1) of participants reported, "My clinical practice is to ask about emotional concerns during my ROS when I admit or see patients in clinic. If there is a concern, I continue discussions and immediately refer to our LCSWS. I believe that a standard tool would be useful when considering starting and evaluating effectiveness of antidepressants."

Discussion

The intentions of this DNP project were to promote early recognition of depression in pediatric oncology patients who seek care in the DBC, as well as compare physician and APP clinical practice regarding depression before and after reviewing an educational PowerPoint on the CES-DC. A primary aim of this study was to identify professional barriers associated with performing depression screening pre- and post-the PowerPoint presentation. Evidence from this DNP project shows there is not a DM protocol in the DBC regarding screening methods for depression. Patients are treated for depression by physician and APP preference. This is likely due to existing guidelines, recommendations, and accreditation standards for DM not meeting consistent detailed implementation guides (Deshields et al., 2021). This lack of consistency within the United States contributes to variations observed in clinical practice outcomes related to the implementation of DM protocols and complicates the interpretation of research results across studies that are geared toward understanding and better managing this issue (Zebrack et al., 2016; Zebrack et al., 2018).

In comparing pre- and post-survey variables there was no difference in screening intentions (frequencies were the exact same), therefore the intentions to treat for depression without using a screening tool cannot be analyzed because all said, “no” in the post-survey. A second aim of the study was to provide a PowerPoint to physicians and APPs with enough education to highlight the need for the use of a standardized depression screening tool by making a clinical practice change. However, it was difficult to analyze future intentions of a clinical practice change using a screening tool, because although 37.5% (n=3) of participants felt their clinical practice was effective in recognizing and treating depression, a majority of participants chose not to screen every patient seen in the clinic or on 4-West between the ages of 5-21 for depression after reviewing the educational PowerPoint (87.5%).

The qualitative data suggest the need for the implementation of a DM protocol within the DBC to utilize a standardized depression screening tool represented by several participants stating they did not have time to screen every patient. Evidence within the literature suggests HRQOL is linked to disease

progression, therefore the task of not only screening pediatric oncology patients, but every patient, needs to be assigned to a professional in the clinic with designated time.

While evaluating the quantitative data in the post-survey responses, it is evident that all eight providers found the educational PowerPoint informative. The implementation of the CES-DC used on every patient visit in the DBC and 4 west unit (4W) admission provides a universal distress management protocol among the APPs and Physicians and closes the knowledge gap on clinical practice and the specific type of screening tool used. Educating providers about the CES-DC and the importance of a DM protocol specific to the pediatric oncology population not only expands the knowledge of the physicians and APPs, but it also emphasizes the need for a clinical practice change to improve patient care and HRQOL among pediatric oncology patients.

Implications for Practice, Education, Policy and Research

This study has highlighted several implications for future research. With the small sample size represented in this study, future research could focus on a larger sample including oncology treatment teams in the surrounding area i.e., Norton's Children's Hospital and Cincinnati Children's Hospital Medical Center. More pointed questions should be added into the pre- and post-survey including 1.) Years of practice, 2.) Screening confidence (on a five-point Likert scale), 3.) Type of education received for mental health of oncology patients, 4.) Number of patients diagnosed with depression, 5.) Number of patients prescribed antidepressants including SSRIs, benzodiazepines, and psychotropics, 6.) Number of patients referred to the licensed social workers for suspected depression, 7.) Interest in bringing on a licensed psychologist to the treatment team (on a five-point Likert scale), 8.) Total scores of those patients screened with the CES-DC, 9.) Barriers to screening patients with a comment box provided. Specifically pertaining to the DBC, future researchers should invite the licensed social workers to participate in this study with the modified pre- and post-survey questions.

More research needs to be completed in comparing various standardized depression screening tools to use among the pediatric oncology patients for validity and consistency. Found within the literature, Compas et al. (2014) measured the validity, consistency, and specificity of the Psychosocial

Screen for Cancer (PSSCAN) created specifically for oncology patients. The PSSCAN is used in the DSM-IV as a 21-item questionnaire on a five-point Likert scale to assess anxiety, depression, and quality of life. However, this was the only article found using the PSSCAN screening tool and the article's sample consisted of adults.

Further investigation is needed to gather data regarding specific standardized screening tools best utilized for educating providers, as well as how to implement the educational PowerPoint into a web-based training (WBT) for future providers joining the oncology treatment team. Once the specific screening tool is decided upon and the WBT is created, future research can develop a comprehensive DM protocol for the use of a standardized depression screening tool and implement the practice change into the facility for a new study. It would also be useful to investigate the precedent set at other healthcare institutions and evaluate their standardized policy and protocol for pediatric oncology patients presenting with signs/symptoms of depression. "Cancer for the Whole Patient" was published by the Institute of Medicine in 2008, providing a clear and strong recommendation that the provision of psychosocial services be adopted as a standard of quality cancer care set forth by the American College of Surgeons (ACoS) and the CoC. Key findings from this study indicated that the psychosocial health care needs of patients with cancer are not being adequately addressed despite evidence supporting the effectiveness of a range of services to help patients and their families manage the psychosocial aspects of cancer.

Beginning in 2015 a new standard of care was set in place by the ACoS and the CoC, requiring cancer centers to implement screening programs for psychosocial distress as a new criterion for accreditation (Pirl et al., 2015). The ACoS, CoC, Association of Oncology Social Work (AOSW), and Oncology Nursing Society (ONS) endorsed the new CoC standard 3.2 on psychosocial distress screening recognizing that it will help address unmet psychosocial needs and improve "cancer care for the whole patient" (Pirl et al., 2015). According to Standard 3.2: Psychosocial Distress Screening, each center must have a cancer committee that "develops and implements a process to integrate and monitor on-site distress screening and referral for the provision of psychosocial care. This standard addresses issues related to the time of screening, screening tools and methods, assessment and referral, and documentation.

Nursing staff are at the front lines of patient care and their thoughts should be evaluated as well. Nursing could be incorporated into the DM protocol if hiring a licensed Psychologist, trained in psycho-oncology, onto the oncology treatment team is not feasible. Screening consistency within the DBC and the implementation of a developed DM protocol would be feasible if a psycho-oncology cancer committee is formed.

As a community of healthcare providers, it is our goal to reduce the rate of depression and improve quality of life. Evidence suggests integrating multidisciplinary depression interventions into cancer care as a cost-effective means of addressing inadequate treatment and achieving confidence and esteem for patients' mental and physical needs (Pitman et al., 2018). It is apparent within this study's data that there is a lack of psycho-oncological initiative within the DBC. There is not one preferred screening tool over the other, nor is there a developed DM protocol. Therefore, each patient is treated differently based on the education and clinical practice of the provider. DBC patients would have a universal treatment plan that meets the standards of an accredited cancer care center if Standard 3.2 of the ACoS and CoC were met. Moreover, the data from this study amplifies the need for an individual(s) that have the time for educational training and implementation, based on personal comments about the lack of time for screening in the pre- and post-surveys.

Limitations

Several limitations were identified in the design of this study. Choosing one unit to implement the study created a limitation due to the small existing sample size of 12 physicians and APPs in total making up the pediatric oncology treatment team. Of the 12 physicians and APPs invited to the study, only eight participated thus creating a smaller sample size. The success and accuracy were highly dependent on the time and willingness of the providers as well as their two-week follow through with the post-survey. Therefore, lack of time, patience, and dedication to the study could have fallen through from the beginning of the study to the end.

COVID-19 created several limitations regarding face-to-face, interactive education and project discussion on a personal level leaving technology as the only line of communication. Virtual technology

was available to contact providers for reminders of deadlines, but those deadlines were still missed causing the study deadline to be pushed back. This was likely due to summer vacations, patient load, and other work/personal priorities.

While there was little research to be found on the accuracy of the CES-DC, there was a large quantity of research to be found using the CES-DC to diagnose depression among pediatric oncology patients. Therefore, the search was narrowed to those studies utilizing the CES-DC as opposed to how accurate it is. However, there was no limit to the number of articles provided on depression amongst pediatric patients and the long-term effects they endure.

The length of time designated to complete the study posed an additional limitation. To keep the project manageable and ensure that it met the target deadline, the time of the project was minimized to one month in total. Had the two weeks been extended to a month or even two months to implement the CES-DC into providers' practice, there would potentially be more feedback and willingness to pilot the temporary practice change.

Conclusion

The data results from this study found that there was not an implemented DM protocol, nor a universal standardized depression screening tool used among the Physicians and APPs in the DBC. Each patient is screened and treated for depression differently than the next patient based upon the Physician's and APP's personal clinical practice. There were few barriers found when screening patients, however the two primary barriers were lack of time among the clinical professionals and screening consistency. Opportunity exists to better utilize the tools set in place by the ACoS and CoC to develop a DM protocol to apply a standardized depression screening tool by the psycho-oncological committee to every DBC patient. It is recommended that this project be replicated with a larger sample size, additional survey questions regarding the CES-DC patient scores, and the idea of a licensed psychologist hired on to the pediatric oncology treatment team to improve pediatric oncology patients' HRQOL and screening consistency.

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Table 1. *Evidence Table*

Study Author	Year	Number of Participants	Sample Characteristic	Study Design	Intervention	Major Finding
Bamonti, P. M., Moye, J., & Naik, A. D.	2018	122	Treatment Length: 1-18mo/MA:65	COHORT, CASE CONTROL	DSM-IV & PHQ-9 Intervals	Increased Depression
Barker MM, Beresford B, Bland M, Fraser LK	2019	6,042	5-25 years of age	SR, META ANALYSIS OF RCTs	HADS, CDI, DSM-IV, DIKJ, SELF-REPORT/PARENT-REPORT -Different tools used in different locations at time of diagnosis)	Increased Depression
Brintzenhofe-Szoc, K. M., Levin, T. T., Li, Y., Kissane, D. W., & Zabora, J. R.	2009	8,265	MA: 54 years of age	COHORT, CASE CONTROL	BSI, SCL-90, HADS, HAM-D	Increased Depression
Cavuşoğlu, H.	2001	100	9-13 years of age	QUASI-EXP, NON-RANDOM CT	CES-DC- compared cancer vs healthy children	Increased Depression
Compas, B. E., Desjardins, L., Vannatta, K., Young-Saleme, T., Rodriguez, E. M., Dunn, M., & Gerhardt, C. A.	2014	635	5-17 years of age	COHORT, CASE CONTROL	RSQ-PC, CBCL, YSR CHILD SELF REPORT, PARENT SELF REPORT of children's coping at interval times.	Increased Depression
D'Souza, A. M., Devine, K. A., Reiter, P. J., Gerhardt, C. A., Vannatta, K., Noll, R. B., & Reiter-Purtill, J	2019	117	18 years of age	SR, META-ANALYSIS	Compared cancer patients in first year of treatment to healthy children.	No effect
Esmaeeli MR, Erfani Sayar R, Saghebi A	2014	90	8-16 years of age	SINGLE QUALITATIVE, DESCRIPTIVE, QI	CES-DC screened; 8±5.3 days of hospital stay. Compared children with chronic renal disease, malignancy, and acute disease	Increased Depression
Geue, K., Brähler, E., Faller, H., Härter, M., Schulz, H., Weis, J., … & Mehnert, A.	2018	302	15-39 years of age	COHORT, CASE CONTROL	CES-DC , PHQ-9, GAD-7; Cancer pts diagnosed <5 years, Screened 1yr and lifetime.	Increased Depression
Gordijn MS, van Litsenburg RR, Gemke RJ	2012	62	5-15 years of age	SR, META-ANALYSIS	CHQ, CDI- Screened 22–62 months after finishing treatment	Increased Depression
Linden, W., Vodermaier, A., MacKenzie, R., & Greig, D	2012	10,153	MA: 59 years of age	SR, META-ANALYSIS	DSM-IV-Screened patients after diagnosis	Increased Depression

Mattsson, S., Olsson, E., Carlsson, M., & Johansson, B	2019	558	UTBD-	COHORT, CASE CONTROL	eVAS, HADS, STAI-S, MADRS-Sl screened cancer patients <6mo diagnosed, compared the length and validity of all.	Increased Depression; High Validity
Myers, R. M., Balsamo, L., Lu, X., Devidas, M., Hunger, S. P., Carroll, W. L., & Kadan-Lottick, N. S	2014	159	2-9 years of age	SR, META-ANALYSIS	(SR-ALL) during the first year of therapy and identified associated risk factors, 1, 6 and 12 months after diagnosis.	Increased Depression
Ruland, C. M., Hamilton, G. A., & Schjødt-Osmo, B	2009	5,059	7-12 years of age	SR, META ANALYSIS OF RCTs	SISOM- self report	Increased Depression
Satin, J. R., Linden, W., & Phillips, M. J.	2009	2097	MA: 47.8	SR, META-ANALYSIS	HADS, DSM-III/DSM-IIIR, effects of depression on cancer progression	No Effect
Zeltzer, L. K., Recklitis, C., Buchbinder, D., Zebrack, B., Casillas, J., Tsao, J. C., Lu, Q., & Krull, K.	2009-2016	7,147	3-15 years of age	SR, META-ANALYSIS	BSM-18, HRQOL, CCSS-NCQ- compared cancer survivors' quality of life post treatment to healthy	Increased Depression Decreased HRQOL.

Table 2. *Descriptive summary of participants characteristics (n=8)*

	***n* (%)**
Professional role	
MD	4 (50.0%)
APRN	4 (50.0%)
Patients seen in one day	
5-10	7 (87.5%)
10-15	1 (12.5%)
Patients between 5-21years old	
0-4	4 (50.0%)
5-10	4 (50.0%)
Knowledge of depressive screening tool used in Clinic	
Yes	1 (12.5%)
I don't know	4 (50.0%)
No	3 (37.5%)
Preferred depressive screening tool	
No	7 (87.5%)
Missing respondent	1 (12.5%)
Screen every patient in clinic 5-21 years old	
Yes	1 (12.5%)
No	7 (87.5%)
Barriers to screening patients 5-21 years old	
Yes	6 (75.0%)
No	1 (12.5%)
Missing respondent	1 (12.5%)
Familiar with the CES-DC	
Yes	3 (37.5%)
No	5 (62.5%)
Clinical practice when patient presents with depression signs/symptoms	
Refer to licensed Social Worker	5 (62.5%)
Refer to child Psychologist	1 (12.5%)
Treat with medication	2 (25.0%)
Talk about s/sx and recommend safe outlets/resources	2 (25.0%)

Key: s/sx: Signs/Symptoms

Table 3. *Post-survey descriptive summary of intervention (n=8)*

	n (%)
Attempt to use CES-DC screening tool since the intervention	
Yes	3 (37.5%)
No	5 (62.5%)
Clinical practice when patient presents with depression signs/symptoms	
Refer to licensed Social Worker	5 (62.5%)
Talk about s/sx and recommend safe outlets/resources	3 (37.5%)
Made a clinical practice change	
Yes, I screened every patient	1 (12.5%)
Yes, I tried the CES-DC, but not on every patient	4 (50.0%)
No	3 (37.5%)
Recommend screening every patient	
Yes	6 (75.0%)
No	2 (25.0%)
Recommend the CES-DC	
Yes	7 (87.5%)
No	1 (12.5%)
Willing to make a practice change	
Yes	6 (75.0%)
No	1 (12.5%)
It is already within my practice to screen every patient	1 (12.5%)
Found Educational PowerPoint informative	
Yes	8 (100.0%)
No	0 (0.0%)

Key: s/sx: Signs/Symptoms

Table 4. *Changes in outcomes before and after the educational intervention (n=8)*

	Pre-education % yes	Post-education % yes	*p*
Screen every patient you see in the clinic between the ages of 5-21 for depression	12.5%	12.5%	--
Do you believe there is a gap in recognizing early signs/symptoms of depression in pediatric oncology patients	87.5%	62.5%	.50
Do you believe there is a gap in treating of depression in pediatric oncology patients	87.5%	62.5%	.50
Do you treat children for depression without performing a depressive screening tool questionnaire	37.5%	0.0%	n/a*

*Note: p-value for McNemar's test is not estimable since all responded no on the post-education.

Appendices

Appendix 1. *Informed Consent*

Promotion of Early Recognition of Depression in Pediatric Oncology Patients

Survey Cover Letter

Dear UK HealthCare DanceBlue Clinic Oncologist, Hematologist, and APRN:

Researchers at the University of Kentucky are inviting you to take part in a survey study about depression in pediatric oncology patients. The study is titled" Early Recognition of Depression in Pediatric Oncology Patients 5-18 Years of Age." The purpose of this study is to 1. Determine if an educational voice-over PowerPoint presentation is effective in improving clinical practice; 2. To determine professional barriers associated with performing depression screening by the healthcare Pediatric Oncology team pre- and post- an educational voice over PowerPoint presentation; and 3. To bring awareness of the importance in early recognition of depression in pediatric oncology patients. You are being invited to participate in this study because you are either an Oncologist, Hematologist, or APRN, at UK HealthCare Dance Blue Clinic.

Although you may not get personal benefit from taking part in this research study, your responses may help us understand more about how educational reviews can be used for targeted barriers regarding clinical practice. Additionally, your responses may have impact on future sought out evidence based clinical practice for the enhancement of patient care. Some volunteers experience satisfaction from knowing they have contributed to research that may possibly benefit others in the future.

Participation is entirely voluntary, anonymous, and confidential. You may withdraw at any time from participation should you choose. Participation in the study is at no cost to you except for the time taken to complete the survey. If you do not want to be in the study, there are no other choices except not to take part in the study.

Your participation will involve answering survey questions about clinical practice regarding depression. There are two surveys, one to take before listening and reviewing the voice over PowerPoint presentation and one to take after listening and reviewing the voice over PowerPoint presentation; each will take about 10-15 minutes to complete. The risks involved in the surveys are minimal. There is potential for breach of confidentiality, however, this is lessened as the surveys do not collect any information that is likely to identify any one individual. In no way will participation in this study have effect on your performance evaluation or job duties. Your responses to the surveys will be kept confidential to the extent allowed by law. Your response to the survey is anonymous which means no names, IP addresses, email addresses, or any other identifiable information will be collected with the survey responses. Researchers will not know which responses are yours if you choose to participate. When researchers write about the study you will not be identified. The information may be used for future research or shared with other researchers without your additional informed consent.

Researchers hope to receive completed surveys from approximately 15 people, so your answers are important to the success of the research study. Of course, you have a choice about whether to complete the surveys, but if you do participate, you are free to skip any questions or discontinue at any time. You will not be penalized in any way for skipping or discontinuing the survey. Note, that by proceeding to the survey link, you are agreeing to participate in the research study.

Please be aware, while we make every effort to safeguard your data once received from the online survey company, UKY Qualtrics, given the nature of online surveys, as with anything involving the Internet, researchers can never guarantee the confidentiality of the data while still on the survey company's servers, or while in route to the researchers of this study. It is also possible the raw data collected for research purposes will be used for marketing or reporting purposes by the survey/data

gathering company after the research is concluded, depending on the company's Terms of Service and Privacy policies.

If you have questions about the study, please feel free to ask; contact information is provided below. If you have complaints, suggestions, or questions about your rights as a research volunteer, contact the staff in the University of Kentucky Office of Research Integrity at 859-257-9428 or toll-free at 1-866-400-9428.

Thank you in advance for your assistance with this important project. You will find the survey link attached below.

Survey link: https://uky.az1.qualtrics.com/jfe/form/SV_6qY9h6HrERjB5FI

Sincerely,

Jennifer Blankenship, RN, BSN
Graduate College of Nursing, Student Doctor of Nursing Practice
University of Kentucky
PHONE: 573-268-5552
E-MAIL: jen.blankenship@uky.edu

Appendix 2. *Pre-Survey*

Depression in Pediatric Oncology Patients-- Pre-Education Survey

Start of Block: Default Question Block

Q1 Please create a unique identifier that contains a color followed by a set of 4 digit numbers (Example: GREEN-1055). This is to compare your pre- and post- survey answers while keeping your identity anonymous. Note: Do not forget your unique identifier as it will be asked of you again on the post- survey.

_____

Q2 What is your professional role in the Dance Blue Clinic?

- Pediatric Oncologist, MD (1)
- APRN (2)

Q3 On average, how many patients do you see in one day?

- 0-4 (1)
- 5-10 (2)
- 10-15 (3)
- 15-20 (4)

Q4 Of those patients, how many on average are between the ages of 5-21?

- 0-4 (1)
- 5-10 (2)
- 10-15 (3)
- 15-20 (4)

Q5 Is there a standardized depressive screening tool used for patients in the clinic?

- No (1)
- I don't know (2)
- Yes (3)

Q6 If you marked yes, do you feel the standardized screening tool is effective?

- No (1)
- Yes (2)
- I marked "I don't know" (3)

Q7 If there is not a standardized screening tool, or you marked "I don't know", do you use a particular screening tool you prefer?

- ○ No (1)
- ○ Yes (2)

Q8 Do you screen every patient you see in the clinic between the ages of 5-21 for depression?

- ○ No (1)
- ○ Yes (2)
- ○ Yes, but a different age group (3)

Q9 Are there barriers to screening pediatric oncology patients between the ages of 5-21?

- ☐ No (7)
- ☐ Yes (8) _____

Q10 Do you treat children for depression without performing a depressive screening tool questionnaire?

- ○ No (1)
- ○ Yes (2)

Q11 When a patient is presenting with depressive symptoms do you... (select all that apply)

- ○ Refer to the licensed social worker (1)
- ○ Refer to child life (2)
- ○ Refer to Oncologist (3)
- ○ Refer to APRN (4)
- ○ Refer to child Psychologist (5)
- ○ Perform a depressive screening tool (6)
- ○ Treat patient for depression with medication (7)
- ○ Talk with patient about signs/symptoms and recommend outlets for stress and feelings/thoughts (8)
- ○ Assume it is related to their cancer diagnosis and reassure patient it is common, but do not diagnose depression or treat depression. (9)

Q12 Are you familiar with the Center for Epidemiological Studies Depression Scale for Children (CES-DC)?

- ○ No (1)
- ○ Yes (2)

Q13 Do you believe there is a gap in recognizing early signs/symptoms of depression in pediatric oncology patients?

- ○ No (1)
- ○ Yes (2)

Q14 Do you believe there is a gap in treating early or late signs/symptoms of depression in pediatric oncology patients?

- No (1)
- Yes (2)

Q15 Please write any comments or questions you may have below.

_____

End of Block: Default Question Block

Appendix 3. *Post-survey*

Depression in Pediatric Oncology Patients -- Post-Education Survey

Start of Block: Default Question Block

Q1 Please enter your unique identifier that contains a color followed by a set of 4-digit numbers (Example: GREEN-1055). This will be the same unique identifier you enter on the pre- education survey. This is to compare your pre- and post- survey answers while keeping your identity anonymous.

_____

Q2 On average, how many patients do you see in one day?

- 0-4 (1)
- 5-10 (2)
- 10-15 (3)
- 15-20 (4)

Q3 Of those patients, how many on average are between the ages of 5-21?

- 0-4 (1)
- 5-10 (2)
- 10-15 (3)
- 15-20 (4)

Q4 Is there a standardized depressive screening tool used for patients in the clinic?

- No (1)
- I don't know (2)
- Yes (3)

Q5 If you marked yes, do you feel the standardized screening tool is effective?

- No (1)
- Yes (2)
- I marked "I don't know" (3)

Q6 After reviewing the educational power point on the CES-DC, would you change anything about the Dance Blue Clinic's standardized screening tool?

- Fewer questions (1)
- More questions (3)
- More child friendly (2)
- I feel it is unnecessary (4)
- I would change the type of screening tool used (7)
- Nothing (5)
- Other (6)

Q7 After reviewing the educational PowerPoint did you screen every patient you saw in the clinic or on 4-west between the ages of 5-21 for depression?

- No (1)
- Yes (2)

Q8 After reviewing the educational PowerPoint did you attempt to use the CES-DC screening tool?

- No (1)
- Yes (2)

Q9 After reviewing the educational PowerPoint did you treat your patients for depression without performing a depressive screening tool questionnaire?

- No (1)
- Yes (2)

Q10 After reviewing the educational powerpoint, when a patient presented with depressive symptoms in the clinic or on 4-west did you... (select all that apply)

- Refer to the licensed social worker (1)
- Refer to child life (2)
- Refer to Oncologist (3)
- Refer to APRN (4)
- Refer to child Psychologist (5)
- Perform a depressive screening tool (6)
- Treat patient for depression with medication (7)
- Talk with patient about signs/symptoms and recommend outlets for stress/feelings/thoughts (8)
- Assume it is related to their cancer diagnosis and reassure patient it is common, but did not diagnose depression or treat depression. (9)

Q11 Did you find the PowerPoint presentation informative?

- No (3)
- Yes (4)

Q12 Did you make a clinical practice change after reviewing the educational PowerPoint?

- No, I feel my clinical practice is effective in recognizing and treating depression (1)
- Yes, I screened every new admission to the clinic, 4-west, or a patient showing signs/symptoms of depression with the standardized clinic screening tool/screening tool of my choice. (2)
- Yes, I tried the CES-DC on my patients, but not all (3)
- Yes, I screened every new admission to the clinic, 4-west, or a patient showing signs/symptoms of depression with the CES-DC. (4)

Q13 Do you believe there is a gap in recognizing early signs/symptoms of depression in pediatric oncology patients?

- No (1)
- Yes (2)

Q14 Do you believe there is a gap in treating early or late signs/symptoms of depression in pediatric oncology patients?

- No (1)
- Yes (2)

Q15 Would you recommend screening pediatric oncology patients upon every admission, clinic visit, and a patient showing signs/symptoms of depression?

- No (1)
- Yes (2)

Q16 Would you recommend the CES-DC?

- No (1)
- Yes (2)

Q17 Would you recommend a specific depression screening tool that you find effective?

_____

Q18 Would you be willing to make a practice change to screen every patient upon every admission, clinic visit, and a patient showing signs/symptoms of depression if you have not already?

- No (1)
- Yes (2)
- I made the clinical practice change after reviewing the educational powerpoint (3)
- It is already in my clinical practice to screen every patient upon every admission, clinic visit, and a patient showing signs/symptoms of depression. (4)

Q19 Please write any comments or questions you may have below.

_____

Q20 Thank you for your valuable time and participation in my Pediatric Acute Care DNP project.

End of Block: Default Question Block

Appendix 4. *Center for Epidemiological Studies Depression Scale for Children*

BRIGHT FUTURES TOOL FOR PROFESSIONALS

INSTRUCTIONS FOR USE

Center for Epidemiological Studies Depression Scale for Children (CES-DC)

The Center for Epidemiological Studies Depression Scale for Children (CES-DC) is a 20-item self-report depression inventory with possible scores ranging from 0 to 60. Each response to an item is scored as follows:

0 = "Not At All"

1 = "A Little"

2 = "Some"

3 = "A Lot"

However, items 4, 8, 12, and 16 are phrased positively, and thus are scored in the opposite order:

3 = "Not At All"

2 = "A Little"

1 = "Some"

0 = "A Lot"

Higher CES-DC scores indicate increasing levels of depression. Weissman et al. (1980), the developers of the CES-DC, have used the cutoff score of 15 as being suggestive of depressive symptoms in children and adolescents. That is, scores over 15 can be indicative of significant levels of depressive symptoms.

Remember that screening for depression can be complex and is only an initial step. Further evaluation is required for children and adolescents identified through a screening process. Further evaluation is also warranted for children or adolescents who exhibit depressive symptoms but who do not screen positive.

See also

Tool for Families: Symptoms of Depression in Adolescents, p. 126.

Tool for Families: Common Signs of Depression in Children and Adolescents, p. 147.

REFERENCES

Weissman MM, Orvaschel H, Padian N. 1980. Children's symptom and social functioning self-report scales: Comparison of mothers' and children's reports. *Journal of Nervous Mental Disorders* 168(12):736–740.

Faulstich ME, Carey MP, Ruggiero L, et al. 1986. Assessment of depression in childhood and adolescence: An evaluation of the Center for Epidemiological Studies Depression Scale for Children (CES-DC). *American Journal of Psychiatry* 143(8):1024–1027.

Center for Epidemiological Studies Depression Scale for Children (CES-DC)

Number _____

Score _____

INSTRUCTIONS

Below is a list of the ways you might have felt or acted. Please check how *much* you have felt this way during the *past week*.

DURING THE PAST WEEK	Not At All	A Little	Some	A Lot
1. I was bothered by things that usually don't bother me.	____	____	____	____
2. I did not feel like eating, I wasn't very hungry.	____	____	____	____
3. I wasn't able to feel happy, even when my family or friends tried to help me feel better.	____	____	____	____
4. I felt like I was just as good as other kids.	____	____	____	____
5. I felt like I couldn't pay attention to what I was doing.	____	____	____	____

DURING THE PAST WEEK	Not At All	A Little	Some	A Lot
6. I felt down and unhappy.	____	____	____	____
7. I felt like I was too tired to do things.	____	____	____	____
8. I felt like something good was going to happen.	____	____	____	____
9. I felt like things I did before didn't work out right.	____	____	____	____
10. I felt scared.	____	____	____	____

DURING THE PAST WEEK	Not At All	A Little	Some	A Lot
11. I didn't sleep as well as I usually sleep.	____	____	____	____
12. I was happy.	____	____	____	____
13. I was more quiet than usual.	____	____	____	____
14. I felt lonely, like I didn't have any friends.	____	____	____	____
15. I felt like kids I know were not friendly or that they didn't want to be with me.	____	____	____	____

DURING THE PAST WEEK	Not At All	A Little	Some	A Lot
16. I had a good time.	____	____	____	____
17. I felt like crying.	____	____	____	____
18. I felt sad.	____	____	____	____
19. I felt people didn't like me.	____	____	____	____
20. It was hard to get started doing things.	____	____	____	____