

Oncology Patient Education by a Nurse Practitioner and Stress Reduction

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Approved May 2020 by the faculty of UMKC in partial fulfillment of the requirements for the
degree of Doctor of Nursing Practice

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Abstract

According to the American Cancer Society, approximately 1.7 million new cancer cases were diagnosed in 2018. With a new diagnosis of cancer, patient education can be used to decrease anxiety about the diagnosis and chemotherapy treatment plan; the individual is a novice to the experience, thus necessitating education. The purpose of this evidence-based practice quality improvement initiative was based on the inquiry, in adult oncology patients who are scheduled for first-time chemotherapy, does an educational meeting with a nurse practitioner before chemotherapy decrease the stress level? A quasi-experimental design, single group with a pre- and post-evaluation used the National Comprehensive Cancer Network Distress Monitoring Tool to evaluate level of stress. The intervention included an educational meeting with the nurse practitioner to discuss general side effects of chemotherapy and the specific treatment plan for each patient. Participants' distress level decreased from the pre-test mean score of 4.21 to the post-test mean score of 3.17 ($p= 0.002$), thus suggesting it was a successful intervention. The impact on healthcare, specifically oncology patients, is to reduce feelings of distress related to their first-time receiving chemotherapy.

Keywords: oncology, cancer, education, distress, anxiety

Oncology Patient Education by a Nurse Practitioner and Stress Reduction

According to the American Cancer Society (2018), approximately 1.7 million new cancer cases were diagnosed in 2018. Of those 1.7 million new cancer cases, 17,100 newly diagnosed cancer patients are in the state of Iowa (American Cancer Society, 2018). Patient education about the cancer diagnosis occurs throughout the diagnosis continuum including education about their diagnosis, treatment plan, and side effects. Many side effects are associated with cancer and treatment. Evidence-based practice guidelines addressing patient's fatigue, anxiety, and depressive symptoms assist providers in managing care for cancer patients and addressing side effects associated with their chemotherapy treatment as well as their diagnosis.

Diversity Considerations and Local

Within the clinic's oncology department, in Ames, Iowa, approximately 10-20 newly diagnosed patients are seen weekly between the five medical oncologists (personal communication, November 10, 2016 and April 12, 2019). At the clinic, these patients are treated with an array of medical specialists including the primary medical oncologist, radiologist, radiation oncologist, chemotherapy infusion nurse, and a nurse navigator. These patients receive confirmation of their diagnosis at their consultation appointment with the medical oncologist. A treatment plan is formulated, and plans are prepared to start chemotherapy if indicated. Currently, patients receive the majority of their chemotherapy patient education during their first chemotherapy infusion by a registered nurse.

The patient population at the clinic includes primarily Caucasians with varying levels of education. A significant number of patients are in the farming and agriculture business. Patients also vary in age, ranging from early 20s to 100 years old. The educational intervention allows patients to grow in knowledge about their cancer diagnosis, expected treatment, and potential

side effects and outcomes. The student nurse practitioner will empower patients by providing individualized education along with time for questions and collaboration to provide the best outcome for the patient.

Local Issue

In Iowa, for the year 2018, an estimated 17,100 new cancers were diagnosed (Iowa Cancer Reports, 2019). In Story County, where the clinic is located, an estimated 370 new cancer cases were diagnosed in 2018 (Iowa Cancer Reports, 2019). The oncology providers employed by the clinic serve patients in the surrounding counties including Boone, Greene, Webster, Hamilton, and Marshall counties. For these surrounding areas, approximately 205 people will have a new cancer diagnosis in 2019 (Iowa Cancer Reports, 2019).

Problem, Purpose & Inquiry

Current practice at the clinic includes patient education regarding intravenous chemotherapy during the first chemotherapy infusion. Patients with a cancer diagnosis are receiving segmented patient education led by the nurse during the first infusion of chemotherapy. Cancer patients have an educational need including their chemotherapy treatment plan and potential side effects as they are novice in the chemotherapy experience.

Purpose

The purpose was to determine if the educational meeting with a nurse practitioner before initiation of chemotherapy for the newly diagnosed cancer patients decreases their stress and anxiety about their cancer diagnosis and chemotherapy treatment.

Facilitators

The student nurse practitioner currently works within the oncology clinic, and the physicians have a trusting relationship with the student nurse practitioner. The education

materials are in place for use by the providers. The cost of the project is minimal and is considered a facilitator.

Barriers

Low recruitment of patients could be a potential barrier. The nursing and physician staff play an integral role in recruiting patients; if not for their assistance in identifying potential participants, the project would not be successful.

Inquiry

In adult oncology patients scheduled for first time chemotherapy, does an educational meeting with a nurse practitioner before chemotherapy, discussing side effects and treatment plan, decrease the stress level measured within six-months at the clinic?

Literature Search

Search

Several databases and search engines were used to obtain studies for the literature review on oncology patient education. The databases included CINAHL, PubMed, Cochrane, and Medline, as well as the National Guideline Clearinghouse to find evidence-based practice guidelines. Search engines, such as Google Scholar, also provided studies for review. Key search words included patient education, oncology, cancer, chemotherapy, anxiety, side effects, and variations of these phrases. An article was included if it pertained to the initiation of intravenous chemotherapy. An article was excluded if it pertained to oral chemotherapy regimens or if it was dated before the year 2000 (see Appendix I).

Evidence

A total of 23 studies were identified that directly provide evidence. The levels of evidence were graded with the Melnyk Hierarchy of Evidence (Melnyk & Fineout-Overholt,

2015). Four studies were found with level II evidence, with all four studies randomized control trials. Six studies were identified as level III evidence, quasi-experimental and mixed methods. For evidence level IV, a total of nine studies were found with non-experimental systematic reviews the predominant type of studies. One level V evidence study was found and was a descriptive systematic review. Level VI evidence had three single descriptive studies.

Synthesis of Evidence

Studies were reviewed regarding patient education in oncology patients. Different cancer patient populations were identified including breast cancer patients, testicular cancer patients, colorectal cancer patients, and prostate cancer patients. Both patients and their caregivers were interviewed in some of the studies. For the education session, the topics explored are crisis, coping, adaptation, patient education and quality of life. Patients with a cancer diagnosis have specific needs associated with their physical and emotional health, and these topics encompass a major component of their needs.

Crisis, Experienced at Time of Diagnosis

Crisis is defined as a demand for change and an inability to maintain stability (LoBiondo-Wood, 2008). With approximately 1.7 million new cancer cases diagnosed in 2018 (American Cancer Society, 2018), patients will experience crisis at the time of diagnosis (Skoogh, Steineck, Johansson, Wilderäng, & Stierner, 2013). Of those 1.7 million new cancer cases, 17,100 newly diagnosed cancer patients are in the state of Iowa (American Cancer Society, 2018). In both Skoogh et al. (2013) and Synder and Pearse (2010), patients identified they experienced a crisis when provided a cancer diagnosis. The same studies showed that patients found value in having medical professionals present and providing information regarding their diagnosis in their time

of crisis. This value ultimately enhances their quality of life, symptom control, treatment adherence, and treatment efficacy (Andersen et al., 2014).

Coping, Enhanced by Support and Information

Coping is utilized to manage the situation (LoBiondo-Wood, 2008). Furthermore, coping is defined as a way to use current and new resources to decrease the impact of the stressor, such as cancer (LoBiondo-Wood, 2008). Coping can include mechanisms of the patient and their partner or caregiver. Two prevalent themes revolving around coping were relationships and information. Möllerberg et al. (2016) and Bakker, Fitch, Gray, Reed, and Bennett (2001) found that two primary relationships assisted in their coping, the patient's partner and their health care professional. When the patient's partner had strong coping abilities, the health of the partner increased (Möllerbert et al., 2016). Additionally, when patients felt connected to their health care professional, they felt as if they were part of a team (Bakker et al., 2001).

Regarding information, Bakker et al. (2001), Pruthi et al. (2015), Smith et al. (2004), and Rutten et al. (2005) discussed this in multiple ways. Bakker et al. (2001) discussed the *power of information*, specifically coming from their health care professional. Patients additionally sought out their information, though many websites have a low readability level and basic content (Pruthi et al., 2015). Within the clinic setting, patients were often given printed material and discussed their regimen with a healthcare professional, although no consideration was given to different education levels or needs of the patient (Smith et al. 2004). The timing of the information is critical as well, with the most being at the time of diagnosis and during treatment (Rutten et al. 2005).

Adaptation, Lower Anxiety

Accommodating and compromising while giving meaning to the crisis is how LoBiondo-

Wood (2008) describes adaptation. A newly diagnosed cancer patient must overcome multiple stages of stressors and adapt to their new normal. Gazendam-Donofrio et al. (2009) found that parents diagnosed with cancer and their children had stable everyday communication. The parents were still able to communicate with their children one to five years after diagnosis. The families were able to adapt to their *new normal* lifestyle. The study found that communication between the children and parents affected with cancer was no different than *normal* families. A prevalent theme developed: behaviors of adaptation.

Williams and Schreier (2004) found that participants who listened to audiotapes about managing side effects adapted techniques to help manage fatigue, anxiety, difficulty sleeping, and their anxiety levels. Sahin and Erguney (2015) utilized an experimental group which included three educational sessions as well as an educational booklet. Symptom frequency and severity were less common in the post-test experimental group. For these patients, the use of educational material is facilitating adaptation to life with cancer.

An evidence-based practice guideline addresses fatigue and can be used to aid cancer patients in adapting to their symptoms. Bower et al. (2014) recommends routine screening for fatigue, collecting history and physical and laboratory evaluations, conducting education and counseling with observation and reevaluation, providing treatment, and promoting ongoing self-monitoring. In this EBP guideline, patient adaptation is evaluated with the routine screening for fatigue.

In a French study by Garcia et al. (2018), participants were interviewed to identify, confirm, and improve the information needs of cancer patients. Through this longitudinal study, physical activity and psychosocial needs were themes that emerged. These themes emphasized that patients were adapting to their cancer diagnosis and sought information to better understand.

With the use of these results, current patient education can be tailored to include these needs that have been identified in the study (Garcia et al., 2018).

Patient Education, Positive Effects of Cancer Treatment Information

Patient education is the key intervention explored for the project. There are many different types of educational interventions that have been reviewed. One study included six consecutive weeks of individualized written and verbal patient education, face-to-face discussion, and follow up phone calls at least twice a week (Sajjad et al., 2016). Findings indicated that individualized patient education intervention improves the patient's overall quality of life. Kochaki Nejad, Mohajjel Aghdam, Hassankhani, and Sanaat (2016) also discuss an educational intervention, including both the patient and caregiver. The caregiver strain index showed a decrease in the intervention group in the post-test results, and the authors concluded that there was a beneficial effect with the patient-caregiver education and follow-up intervention.

ChemoEd is a pre-chemotherapy, nurse-led patient education intervention studied by Aranda et al. (2011) and indicated a significant improvement in cancer treatment-related concerns, as well as a reduced prevalence and severity of vomiting in the patients who received the ChemoEd intervention. Scholfield et al. (2008) also had a similar study where participants viewed an educational DVD about chemotherapy plus the usual care. No significant difference was found on the effect of the participant's anxiety and depression.

Another approach of educating patients was explored by Prescott et al. (2016) with the implementation of shared medical appointments and readiness teaching. The study aimed to standardize patient education for chemotherapy treatment. Prescott et al. (2016) acknowledged that this is a feasible initiative within an academic institution and could be difficult in a smaller cancer center. In a study utilizing mobile-based patient education, Alboughobeish, Asadizaker,

Rokhafrooz, and Cheraghian (2017) explored the effects on nausea and vomiting for patients undergoing chemotherapy. The education received by their electronic method found no statistical difference when compared to face-to-face education. A pilot study from Rico et al. (2017) included text messaging (SMS) patient instructions. All patients in the study reported the text messages to be helpful (Rico et al., 2017).

Quality of Life, Improved with Education

Quality of life is an important topic, especially for cancer patients. Polat, Arpaci, Deir, Erdal, and Yalcin (2014) studied the quality of life in 50 colorectal cancer patients over six months. Patient education and follow up from staff had a positive impact on patient coped with the disease process and on-treatment period, thus positively affecting patient quality of life (Polat et al., 2014). Schofield et al. (2016) considered if there was an effect on depressive symptoms in prostate cancer patients with the implementation of a nurse-led intervention, including psychological morbidity and quality of life. A significant benefit was found on depressive symptoms; the HADS-D was used to measure the depression outcome (Schofield et al., 2016). Montazeri, Hole, Milroy, McEwen, and Gillis (2004) explored if knowledge of a diagnosis of cancer affected the quality of life. Montazeri et al. (2004) found that participants' quality of life was not affected by knowing of their cancer diagnosis. Conversely Song et al. (2015) found that couples' quality of life was improved with the use of an internet-based educational intervention.

Direct Evidence

For the inquiry relating to decreased stress after patient education for the chemotherapy naïve patient, some studies provided direct evidence. The evidence-based practice guidelines support the factors that could cause stress in a patient's life, but do not provide direct evidence. The Williams and Schreier (2004) study showed decreased anxiety levels after the educational

intervention, which provides direct support for the study inquiry. Findings in the Sajjad et al. (2016) study indicated that the individualized patient education intervention improved the patient's overall quality of life. Kochaki Nejad et al. (2016) concluded that there was a beneficial effect with the education and intervention. For the ChemoEd educational intervention, the study did not show any significant difference in the patient's psychological distress or prevalence and severity of *bother caused by six common chemotherapy side effects* (Aranda et al., 2011). Polat et al. (2014) note that a better quality of life was reported after their educational intervention and follow up.

Evidence Gaps

There is limited evidence related to a nurse practitioner providing patient education for chemotherapy naïve patients. The evidence that exists is patient education provided by the nurse. This evidence from education by a nurse can help build a foundation for the nurse practitioner providing education for the cancer patient.

Theory

LoBiondo-Wood's (2008) middle-range theory, the Theory of Family Stress and Adaptation was the theoretical framework for the evidence-based practice intervention. This theory has major concepts that relate to a newly diagnosed oncology patient. These concepts include stressors, existing resources, perception of the stressor, crisis, pile-up, existing and new resources, family perception of stressor, coping, and adaptation. Researchers developed this theory to understand how some families cope better than other families in the face of adversity (LoBiondo-Wood, 2008). Within the theory, the concepts define how the family adapts to a situation. The Theory of Family Stress and Adaptation can provide a theoretical framework for the project of a nurse practitioner (NP) led educational intervention before newly diagnosed

patients begin chemotherapy treatments. This theory guided the inquiry to determine if the patient's stress level is decreased. The patient presents to the NP in crisis, and the NP assists the patient in navigating their new diagnosis of cancer, working through the phases of crisis, coping, and adaptation (see Appendix D).

Methods

IRB

The project site Institutional Review Board (IRB) in Ames, Iowa approved the project as Not Human Subject Research, evidence-based quality improvement (see Appendix K).

Ethical Issues

The project was compliant with HIPPA requirements. Each patient was provided with an informational letter about the project. Documentation was kept in a locked drawer within the office. The student nurse practitioner worked for the clinic as an infusion nurse during the project. This could have potentially caused a bias, and it was addressed ahead of time. In the letter to the participant, it stated that the student nurse practitioner is employed by the clinic and is a student at the University of Missouri Kansas City (see Appendix J).

Setting & Participants

The setting for the project was an oncology clinic in Ames, Iowa. The clinic is a component of a multi-specialty physician-owned clinic in central Iowa. The practice includes six oncologists with five full-time providers in the Ames location. A convenience sample was used in the project. Inclusion criteria were patients undergoing intravenous chemotherapy for the first time, English-speaking patients, and a cancer diagnosis. Exclusion criteria were patients receiving intravenous (IV) immunotherapy as first-line treatment, patients restarting IV

chemotherapy treatment after a period of no IV chemotherapy, and non-English-speaking patients.

EBP Intervention

Patients were recruited with assistance from the physician staff to participate in the study. These patients met the inclusion and exclusion criteria. Verbal consent was obtained, and a letter detailing information about the study was provided to the patient. Reception staff facilitated scheduling for the NP education session that was convenient for the patient. Patients completed the NCCN Distress Monitoring Tool as a pre-test. The student nurse practitioner provided the educational intervention which entailed a meeting with the NP to discuss general side effects of chemotherapy and the specific treatment plan for each patient. The intervention included evidence-based handouts on the chemotherapy regimen and side effects. The intervention was a verbal discussion with the NP, patient, and family (if applicable). The education materials were currently in use by the nursing staff to provide patient education. Upon completion of the intervention, the patient completed the NCCN Distress Monitoring Tool as a post-test. Data was collected including demographic information, pre- and post-test scores, and any additional feedback verbalized by the patient. Information was presented to the clinic Oncologists to determine the sustainability of the NP providing education before chemotherapy (see Appendix G).

Change Process Theory

The Transtheoretical Model of Health Behavior Change was utilized as the change process theory for the above inquiry, and the student chose this model because it is simple and easy to follow. Six stages facilitate the change process: preconception, contemplation, preparation, action, maintenance, and termination (Melnyk & Overholt, 2005). This change

theory was applied to identify where the patient is and how ready they were to change and learn. Levoy, Salani, and Buck (2019) applied this model to cancer patients and their advance care planning, and it provided a foundation to determine their readiness to participate. Levoy et al. (2019) followed the patients through the continuum of change.

Evidence-Based Practice Model

The Iowa Model was applied in this project. This model is easy to follow and provides a flow chart along with feedback loops to guide the process (Zhao et al., 2016). There are five steps included in the Iowa Model: problem identification, forming a team, critique of relevant search, implementing practice change, and dissemination of finding (Zhao et al., 2016). Within the model, the flowchart provides decision making questions that have simple closed questions to facilitate decision making (Zhao et al., 2016).

Study Design

The study used a quasi-experimental design, single group with a pre- and post-evaluation. The intervention included an educational meeting with the NP. The outcomes measured were the distress level of the patient, before and after the intervention.

Internal and External Validity

Potential factors could have interfered with internal validity. The number of participants anticipated was 50, and the convenience sampling could have potentially affected the sample size. The timeline for the study was six-months. The measurement instrument is validated by the National Comprehensive Cancer Network (NCCN). The project data was collected within one group, pre- and post-test, and analyzed. The close timing of administration of the pre- and post-tests could have impacted the results.

External validity considerations must also be considered. The study was conducted in a Midwestern, medium-sized cancer center in Ames, Iowa. The economic factors include different financial backgrounds of participants. The participants had varying incomes ranging from poverty level to wealthy. The education level of participants also varied greatly, as Ames, Iowa has a university in town as well as small surrounding farming communities. The diagnosis of each cancer patient varied as the five medical oncologists see a variety of cancers. The data collected can be easily transferred to different cancer patient populations, as the participants in the sample are diverse.

Primary and Secondary Outcomes

The primary intervention outcome measured was distress, and the project intervention was expected to improve the distress of the participant with the educational intervention provided by the NP. Although unmeasured, a secondary outcome included that the participant would experience increased knowledge about their treatment plan. A plan to maintain this intervention included adding educational content and sessions. The clinic also needed confirmation on positive results on a NP conducting patient education. With the hiring of a NP for September 2020 at the project site, this project could serve as a component of the job description for the new NP (see Appendix E).

Measurement Instrument

For the inquiry, the outcomes were evaluated with the National Comprehensive Cancer Network's (NCCN) Distress Monitoring Tool (see Appendix H). The tool by Vitek, Quinn Rosenzweig and Stollings (2007) is a screening tool that is brief and includes physical, psychological, and social concerns. The distress monitoring tool is a 0-10 scale in the form of a thermometer. It also includes boxes to indicate specific stressors in the patients' lives: practical,

family, emotional, spiritual, and physical problems. This tool is recognized by the NCCN as a valid screening tool for distress. Moretz (2002) concluded that the NCCN's Distress Thermometer is an easy tool to administer and is valid for screening. Although not explicitly stated, Vitek, Quinn Rosenzweig, and Stollings (2007) also note that this thermometer tool is more precise than the hospital anxiety and depression screening (HADS) and is valid for screening. There is no reliability data published on the tool. The approximate time for a patient to complete the tool is five minutes. This tool is in the public domain.

The tool aligns the outcomes with the identified theory of LiBondo-Wood's (2008) Theory of Family Stress and Adaptation. It identifies areas of need and guides the NP to determine what educational needs take precedence. It aligns with the concepts of crisis, coping, and adaptation. The distress monitoring tool was administered upon the first meeting with the NP. The patient was likely still in crisis mode, as they were naïve to cancer diagnoses and chemotherapy treatment. The goal of the evidence-based practice project was to provide education, increase the coping skills, and help the patient adapt to their new normal.

Quality of Data

To maintain the confidentiality of participants, the NP collected the data and assigned number codes to each survey to match pre- and post-tests. The NP collected data on new-start chemotherapy patients for six months to ensure an adequate number of participants. The participants were assured that their information was for data collection only, to decrease feelings of coercion and that provision of healthcare will not be altered.

Participants in other studies, such as Aranda et al. (2011)'s ChemoEd intervention and Schofield et al. (2016)'s study on nurse-led patient education, showed positive results to

educational interventions. The positive results included decreased scores on the hospital and anxiety depression scale (HADS) and improved perception of quality of life.

Analysis Plan

The results of the pre- and post-test were analyzed using both independent and paired t-tests. These tests compared the pre-test results with the post-test results within the one group as a paired t-test and between unpaired pre and post. Range, median, and mode were calculated. Also, demographics, such as sex, age, race/ethnicity, and cancer diagnosis, were reported by descriptive statistics.

Results

Setting & Participants

The setting for the project was a medium-sized cancer center at a clinic in Ames, Iowa. The project was conducted over a six-month time from September 2019 to February 2020. The number of participants screened for the project was 153. The actual number of participants for the project was 29. The remaining participants did not meet the criteria for the project (had received chemotherapy previously) or the timing of the intervention did not meet the patients' specific timeline for treatment. The gender of the participants were 10 males and 19 females. Of the 29 participants, 28 participants were Caucasian, and one participant was African American. The cancer diagnoses included breast, gastrointestinal (GI), prostate, lung, genitourinary (GU), lymphoma, leukemia, and gynecological (GYN) cancers.

Intervention Course

The course of the project started with IRB approval from the project site on July 11, 2019. Preparation for the project began in August 2019 with creating a schedule and a preparing a recruitment letter. In September, several hours were focused to organizing the education

materials already in place and viewing schedules for potential participants. The first participant for the project had the intervention completed on September 25, 2019. That day also included a meeting with marketing to view the educational materials that are branded for the clinic. From the end of September 2019 to the end of January 2020, the intervention was applied to 29 participants. During February, no project interventions were completed.

Outcome Data

The age of the participants was diverse. The participants ranged from 43 to 87; the majority of the participants were in the 60-69-year-old age group at 34.5% (n = 10).. The second highest age range was 70-79 years old with 24.1% (n = 7).. The number of participants in the 50-59-year-old category was 6 or 20.7%. The oldest age group, 80 years or older, had 13.8% (n = 4). The youngest age group, age 40-49 years old, had 6.9% participants (n = 2). The males were 34.5% of the participants (n = 10), and the females were 65.5% (n = 19). The participants were 96.6% Caucasian (n = 28) with 3.4% African American (n = 1).

With a total of 29 participants, a variety of cancer diagnoses were included in the project. The most common diagnosis code was breast cancer with 27.6% (n = 8). The next most common diagnosis was GI cancers, which included esophageal, colon and rectal cancers with 20.7% (n = 6). Lung cancer, lymphoma, and GYN (endometrial and ovarian) cancers were the third most common with 13.8% (n = 4). Lastly, the prostate cancer, GU cancers, and leukemia cancer types had only 1 participant (3.4%) in each group.

For the distress monitoring scores, a mean score of 4.21 was recorded for the pre-tests. The mean score for the post-test was 3.17. The participants had a lower distress score after the educational intervention, which was statistically significant ($p = 0.002$). This finding directly

supports the inquiry that guided the project; an educational intervention prior to the initiation of IV chemotherapy decreases the distress score of chemotherapy naïve patients (see Appendix N).

Discussion

Successes

The most important successes of this project included positive feedback from participants after they received the intervention. The data reflected a lowering of the distress level which was the goal of the project. Another success was provider satisfaction. The five oncologists were pleased with the project and excited for the 29 total participants. The nursing staff commented that the project intervention decreased their workload, as they did not have to do the “new start education.” Nurses also remarked that their patients seemed more at ease during their first chemotherapy session if they had received the education intervention versus those who had not.

Study Strengths

The strengths of the study included leadership support, the established educational resources, organizational culture, and staff support. First, leadership within the clinic was fully supportive of the project. Physicians identified patients on their schedules that would be receiving first time IV chemotherapy and recruited patients for the project. Nursing leadership facilitated IRB approval. The patient education materials were already in place at the clinic and being used by the nursing staff. Continued learning and process improvement are established within the clinic, thus strengthening the project. The nursing staff also served as a strength for the project as they identified patients that would meet the criteria for the project. Receptionists scheduled patients in the electronic health record (EHR) for a nurse visit for the educational intervention, thus strengthening the project. Utilizing physician recruitment of participants

allowed the project to be successful by creating buy-in from the clinic providers and staff along with the patients, therefore fully supporting the project.

Results Compared to Evidence

The results of this project are similar to the findings in the literature. The project showed a decrease in the patient distress level after the educational intervention, which aligns with current studies by Aranda et al. (2011) and Schofield et al. (2016). While the results of this project and the study from Polat et al. (2014) showed improvement in subjective measurements such as distress level and quality of life, the Polat study was different from this project, as it followed patients after the intervention to see how their quality of life was affected.

Patient education has been shown as useful for the cancer patient population. With evidence for the major themes of crisis, coping, adaptation, patient education, and quality of life, patients can benefit from a one-on-one educational session. Patients experience crises at the time of their cancer diagnosis (Skoogh et al., 2013 & Snyder & Pearse, 2010). After crisis, patients move into the coping phase (LoBiondo-Wood, 2008). During the coping phase, patients seek information about their diagnosis. Adaptation comes when patients learn to accept their new normal of a cancer diagnosis (Gazendam-Donofrio et al., 2009). While adapting, patients and their families have side effects addressed at follow up visits and are empowered to manage their side effects. During the educational visit, side effects are discussed, so with the adaptation phase, this will not be the first time the patient or family has heard about the side effects with management strategies. With education, patients and their families have an improved quality of life (Kochaki Nejad et al., 2016). Patient education is pertinent to the stress level of cancer patients.

Several studies address educational interventions, and the types of interventions were diverse, ranging from audiotapes, one-on-one interventions, group educational sessions, online education to utilizing mobile technology. Studies show varied results on the effectiveness of each type of educational intervention. Quality of life is affected during the entire continuum of cancer care and can be measured with differing tools. Quality of life is improved with education interventions (Polat et al., 2014). The project educational intervention obtained results aligning with the supporting studies and literature.

Limitations

Internal Validity

The project was a convenience sample. While the anticipated number of participants was 50, the sample size of 29 provided a power of 0.83. The close timing of the administration of the pre- and post-test might have influenced the results in a positive manner. The student nurse practitioner conducting the pre- and post-test could have also impacted the results in a positive manner.

External Validity

The study could easily be generalized and transferred to other cancer centers with a diverse population. The diverse economic background of the participants lends to the transferability to other populations, as the population in Ames, Iowa ranges from poverty level to wealthy. The educational background of the participants also varied due to the university in Ames, along with the small surrounding farming communities. With a range of cancer diagnoses in the project, the intervention is transferable to various types of cancer patients.

Sustainability

The project is self-sustaining with a nurse practitioner on staff to provide pre-chemotherapy education visits. The nurse practitioner can bill based on the amount of time and counseling provided to the patient. The five oncologists in Ames have a nurse practitioner hired to start in the fall of 2020, with the pre-chemotherapy education visits as a part of the job responsibilities for this position. To stay apprised of current chemotherapy regimens and the latest treatment modalities, the nurse practitioner will also see patients for toxicity checks, attend the weekly Cancer Case Conference, complete the American Society of Clinical Oncology (ASCO) advanced practitioner certificate program, and sit for the oncology certification test for advance practice nurses after one year of clinical practice.

Efforts to Minimize Limitations

Every effort to minimize limitations was made for the project. While the researcher tried to minimize bias toward the project, there is always a small amount of researcher bias. The single-site limitation could not be diminished, as only one person was executing the intervention. The variety of cancer diagnoses was acceptable but did not include all cancer diagnoses. This limitation could not be minimized, as the project was a convenience sample. For the future, it might be beneficial for the medical oncologists to require an educational visit with the nurse practitioner, making it the standard of care for patients receiving IV chemotherapy for the first time. This would expand the diagnoses as well as the number of participants, thus providing education to all chemotherapy patients. Another limitation that was not able to be minimized was the diversity of the patients' race. This lends to the population that is served at the cancer center which is mainly Caucasian. With efforts to minimize the limitations, the findings can be generalized to other cancer centers. This can also be added to the productivity and job

descriptions of nurse practitioners in the oncology setting. The interpretation of the results did not change based on the limitations.

Interpretation

Expected & Actual Outcomes

The results were better than expected. As the project evolved and the statistical analysis was complete, the project had a positive impact on patient's distress level. Unexpected results, which were unmeasured, include improved nursing satisfaction. The nurses provided incredible feedback about increased patient knowledge on the first day of treatment and noted that patients were more relaxed during their first day. This was an observed outcome, and it aligns with expected and actual outcomes for the project.

Intervention Effectiveness

The intervention was effective largely due to the support of the physicians and staff at the cancer center. All five of the medical oncologists were aware of the project and alerted the student nurse practitioner of potential candidates for the project. The reception staff coordinated the scheduling of the intervention that worked with the patients' schedules as well as the student nurse practitioner. Nursing staff also played a role in the effectiveness, looking at the physician schedules and chemotherapy schedule to identify potential participants in the project. Established education materials also allowed the intervention to be effective. The intervention could be easily transferred to a cancer center that has nurse practitioners on staff, allowing it to be effective in another location outside of the project site. It could potentially be transferred to other settings, such as endocrinology for diabetic teaching or urology for procedural teaching.

Intervention Revision

A revision to the project might be to allow for scheduling from within the EHR from the beginning, fostering documentation of patient education on a nurse visit encounter. This would promote a more seamless process for provision of care, utilizing the EHR to the fullest potential. Another revision might be a full-time nurse practitioner to have the scheduling flexibility to see more patients needing education.

Excepted and Actual Impact to Health System, Costs, & Policy

The expected impact of decreasing patient distress levels before starting their chemotherapy treatment was attained. This impacted the health system by addressing the cancer patients' mental health early and normalizing the need for support during the time of crisis, change, and adaptation to finding a new normal. The cost for patients is one additional office visit for the educational intervention. This project is self-sustaining. The nurse practitioner can bill for the educational intervention based on time spent devoted to counseling. This can be incorporated into a job description for a nurse practitioner in a cancer clinic. For the project site, a nurse practitioner will begin in the fall of 2020 and provide patient education before starting chemotherapy treatment. Further funding for an expansion of this project has not been discussed.

Opportunities

In the fall of 2020, the project site will implement a nurse practitioner into the practice, with a focus on education for all patients before starting chemotherapy. Continuation of the project or implemented as a standard of care with the hired NP would increase the number of patients receiving the education. With the increase of inpatients, further quality improvement findings would support nurse practitioners in oncology patient education. Expanding the project to include all types of chemotherapy (IV, oral, and subcutaneous) would allow for more patients to receive the education. Slight changes in the process would need to be made to improve the

potential bias of having the NP conduct the pre-and post-testing. The NP could utilize the clinical trial staff that currently work in the oncology clinic to conduct the testing. The NP would only be responsible for providing the educational intervention and collecting and analyzing the data.

Another aspect of this project to be considered is nursing staff satisfaction. The nursing staff would have the some of the task of patient education removed from their workload. The nurses would still play an integral role in reinforcing the education provided by the NP but would not solely responsible for patient education. The nursing staff could indicate their satisfaction level after a three-month time frame of the NP providing all of the patient education. With the improved patient distress level and potential increase in nurse satisfaction, this could easily be the new standard of care at the project site.

Conclusion

Usefulness

The goal of this EBP project was to determine the effect of an NP led educational session with chemotherapy naïve patients. The evidence indicates that oncology patients can benefit from education about their treatment plan and side effects before starting their chemotherapy treatment. The NP targeted a decrease in a patient's distress level, as indicated by the NCCN's Distress Monitoring Tool after the educational intervention.

Further Intervention

Further implementation of the evidence can enhance nurse practitioner led patient education and improvement of care, including patient education. Follow up with participants would also strengthen quality care by checking in on the patients after they have had their first chemotherapy session. Another aspect to strengthen the study would be implementing a knowledge test of when to seek care, temperature guidelines to follow, and common side effects

which would include a teach back method between the patient and NP to determine if the information was retained. While cancer diagnosis was included in the demographics of the participants, the results were not separated based on cancer diagnosis. For further analysis, a larger sample could be separated into cancer types to see if the type of cancer impacted the distress level.

Dissemination

Dissemination of information plans include a presentation of findings to the five oncologists within the oncology clinic. The student nurse practitioner presented the plan to future UMKC students at the summer 2019 Clinical Institute. The project proposal was presented as a poster presentation at the Advanced Practice Nurses of the Ozarks conference in Branson.

The original estimated costs for the project were minimal if any. The cost for dissemination had originally come from personal funds, which included the cost of the conference at the Advance Practice Nurse of the Ozarks in Branson, Missouri. The student nurse practitioner did not plan on having the project abstract accepted to the national conference at the Oncology Nursing Society (ONS) Congress, which included \$830 from the UMKC Women's Council for room, board, and transportation to the conference in San Antonio, Texas. Additional funding to cover the cost of the conference was obtained from the student investigator's employer for approximately \$500. With the COVID-19 pandemic affecting many conferences, the ONS Congress was canceled and all funding will be returned.

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Appendix A

Cost Table: Project Intervention

Item	Cost	Total Cost
Paper for Educational Supplies	Cost is already built into clinic costs	\$0
NP Salary	Salary allocated into clinic budget to start September 2020	\$0
		\$0

Cost Table: Immediate Aid Application from UMKC Women's Council

Item	Cost	Total Cost
Room	\$300	\$300
Board	\$10 breakfast x 4, \$15 lunch x 4	\$180
Transportation	Round trip flight from DSM to San Antonio, TX	\$350
		\$830

Appendix B

Definition of Terms

- Chemotherapy: systemic intravenous anti-neoplastic treatment given in the outpatient setting
- Patient Education: information provided to patients regarding their cancer diagnosis, chemotherapy treatment, and side effects.

Appendix C

First author, Year, Title, Journal	Purpose	Research Design, Evidence Level & Variables	Sample & Sampling, Setting	Measures & Readability (if reported)	Results & Analysis Used	Limitations & Usefulness
Current Inquiry: Current Inquiry: In adult oncology patients scheduled for first time chemotherapy, does an educational meeting with a student NP prior to chemotherapy, discussing side effects and treatment plan, decrease patient’s stress level measured by the distress monitoring tool, pre- and post-test intervention, within 6 months at McFarland Clinic?						
Subtopic: Crisis						
EBPG #1 - Anxiety and Depressive Symptoms Andersen, B. L., Derubeis, R. J., Berman, B. S., Gruman, J., Champion, V. L., Massie, M. J., . . . Rowland, J. H. (2014). Screening, assessment, and care of anxiety and depressive symptoms in adults with cancer: An American society of clinical oncology guideline adaptation. Journal of Clinical Oncology, 32(15), 1605-1619. doi:10.1200/jco.2013.52.46 11 Noted	Helping establish practice guidelines for anxiety and depressive symptoms	Hand searches of published literature and searches of electronic databases. Systematic review, Level 4 What was done/ recommendations: Depression screening and assessment, Depression management and treatment, Anxiety screening and assessment, Anxiety management and treatment	Articles from MEDLINE and EMBASE databases and Cochrane library were considered. Other guideline databases were reviewed (SAGE directory of Cancer Guidelines). Number of articles not stated	N/A	Outcomes: -Quality of Life Symptom Control Treatment adherence Treatment efficacy	Non-compliance

<p>Skoogh, J., Steineck, G., Johansson, B., Wilderäng, U., & Stierner, U. (2013). Psychological needs when diagnosed with testicular cancer: Findings from a population-based study with long-term follow up. <i>BJU International</i>, 111 (8), 1287-1293. doi: 10.1111/j.1464-410x.2012.11696</p>	<p>To study the mental/emotional needs of those with a diagnosis of testicular cancer</p>	<p>Quantitative, Level 4 What was done: questionnaires were sent to previous testicular cancer patients that were tracked by a Swedish database called SWENOTECA. 1192 eligible men. Diagnosed between 01/1981 and 12/2004.</p>	<p>Searched the SWENOTECA database, found 1192 eligible men with non-seminomatous testicular cancer. Data collection took place over 9 months.</p>	<p>Self-report questionnaire</p>	<p>974 returned questionnaire. 606 men (63%) said they experienced crisis. 145 men (15%) said they received info about stress and crisis reaction. 30% could not remember if they received info. Frequency tables</p>	<p>Not returned surveys Long term follow up on testicular cancer patients</p>
<p>Snyder, K. & Pearse, W. (2010). Crisis, social support, and the family response: Exploring the narratives of young breast cancer survivors. <i>J Psychosoc Oncol</i>, 28 (4), 413-431. doi: 10.1080/07347332.2010.484830</p>	<p>To determine how young breast cancer survivors utilize social support.</p>	<p>Qualitative, Level 3 What was done: 70 women were interviewed to determine their social support.</p>	<p>70 women diagnosed with breast cancer prior to age 40. Recruited with email or e-newsletter. Phone interviews were conducted, averaging about 60 minutes.</p>	<p>Themes were coded</p>	<p>Outcomes: -Main support networks of younger women with breast cancer -Family as Emotional Support -Family as Tangible Support -Family as Informational Support Experiential Support within & outside of Family Support Networks</p>	<p>Limitations: Homogenous socioeconomic status. Usefulness: experiential support for a health crisis.</p>
<p>Subtopic: Coping</p>						

<p>Möllerberg, M., Sandren, A., Lithman, T., Noreen, D., Olsson, H., & Sjövall, K. (2016). The effects of a cancer diagnosis on the health of a patient's partner: A population-based registry study of cancer in Sweden. <i>European Journal of Cancer Care</i>, 25 (5), 744-752. doi: 10.1111/ecc/12487</p>	<p>Examine how cancer influences the health of spouses/partners.</p>	<p>Quantitative, Level 4, non-experimental What was done: Cancer registry of Southern Sweden was reviewed.</p>	<p>Partners of patients diagnosed between 2005-2007.</p>	<p>Chart review</p>	<p>10,353 partners of patients with cancer (PCA) made up study. Control group was 74,592 partners of controls with no cancer. Risk Ratios with 95% confidence interval used to determine health care use and which diagnosis were most affected.</p>	<p>Limitation: registry did not specify whether patient was curative or palliative. Can help identify vulnerable partners and help get proper support for both patient and partner.</p>
<p>Pruthi, A., Nielsen, M. E., Raynor, M. C., Woods, M. E., Wallen, E. M., & Smith, A. B. (2015). Readability of American online patient education materials in urologic oncology: A need for simple communication. <i>Urology</i>, 85 (2), 351-356. doi: http://dx.doi.org/10.1016/j.urology.2014.10.035</p>	<p>To determine the readability levels of websites that patients frequently access regarding bladder, prostate, kidney, and testicular cancers.</p>	<p>Quantitative, non-experimental Level 6, descriptive What was done: Researchers found eight websites that urologic oncology patients commonly use for information and assessed the readability levels.</p>	<p>Eight websites that were divided into four cancer types (bladder, prostate, kidney, and testicular) were assessed for readability level using seven readability assessment indices. Convenience sample (commonly accessed reliable websites with highest results from Google search)</p>	<p>7 Readability Indices: -FORCAST -Fry Graph Readability -Gunning Fog Index/New Fog count -New Dale-Chall -Simple Measure of Gobbledygook -Raygor Estimate -Flesch readability chart No alpha reported</p>	<p>Websites averaged grade levels from 9.2 to 14.2. Most difficult readability was AUA-UCF and easiest readability was the American Cancer Society.</p>	<p>Did not assess content of each website, only readability. Small number of websites. Readability indices do not capture other significant characteristics that aid patients' understanding of reading material font size, text organization, context & approach</p>

<p>Rutten, L. J., Arora, N. K., Bakos, A. D., Aziz, N., & Rowland, J. (2005). Information needs and sources of information among cancer patients: A systematic review of research (1980–2003). <i>Patient Education and Counseling</i>, 57(3), 250-261. doi:10.1016/j.pec.2004.06.006</p>	<p>Identify cancer patients' information needs, sources used to get information, and information needs through the cancer continuum.</p>	<p>Systematic Review Level 4 What was done: Review of literature to 1) find what information patients need, 2) discover how patients get cancer-related information, and 3) determine how the information sources change throughout the cancer patient's diagnosis (diagnosis, treatment, post-treatment/survivorship, relapse/recurrence, and end-of-life).</p>	<p>112 articles re: how patients get their information and what the information is. Convenience sample from online databases.</p>	<p>Topics were coded and summarized from the 112 articles</p>	<p>Sample characteristics Methodological characteristics Information needs Information sources Needs/Sources across the cancer care continuum Sociodemographic factors and information needs and sources. No alpha reported</p>	<p>Use of predominant use of cross-sectional and retrospective designs Few longitudinal investigations. Small sample sizes</p>
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<p>Smith, J. A., Kindo, C. C., Kurian, S., Whitaker, L. M., Burke, C., Wachel, B., . . . Bodurka, D. C. (2004). Evaluation of patient chemotherapy education in a gynecology oncology center. <i>Supportive Care in Cancer</i>, 12 (8), 577-583. doi:http://dx.doi.org.proxy.library.umkc.edu/10.1007/s00520-003-0546-5</p>	<p>Identify patient educational preferences. Finding ways of improving current educational</p>	<p>Quantitative, non-experimental Level 5, descriptive.</p> <p>What was done: Women in a gynecological cancer center completed a questionnaire with 5 questions re: demographics and 12 questions re: baseline perspective on chemotherapy education.</p>	<p>282 questionnaires were returned - 190 respondents have previously completed, and the other 92 respondents had not received chemotherapy and did not complete the questionnaire. Convenience sample – random assignment</p>	<p>Questionnaire, self-report No alpha reported</p>	<p>At UTMDACC (also place with sample information): 60% of patients reported they had received written materials 69% of patients had discussed their chemo tx with healthcare professional prior to tx. Outside institution: place with sample information 56.3% of patients received info primarily through conversation with healthcare professional 43.7% of patients had received written materials. 62.6% of respondents felt that they were provided with adequate information. Analyzed with frequencies of responses.</p>	<p>Need to consider having 2 levels of patient education material to adjust to patient's needs.</p>
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<p>Bakker, D. A., Fitch, M. I., Gray, R., Reed, E., & Bennett, J. (2000). Patient-health care provider communication during chemotherapy treatment: The perspectives of women with breast cancer. <i>Patient Education and Counseling</i>, 43, 61-71.</p>	<p>Explore relationships of patients with their provider. Determining how the information was presented.</p>	<p>Qualitative, non-experimental. Level 6 - Phenomenology: lived experiences of patients. What was done: Breast cancer patients (women) explain their experience of communication with the healthcare professional</p>	<p>40 women with breast cancer (20 from each regional cancer center Convenience sample. Criteria: Women over age of 18 Aware of breast cancer diagnosis Undergoing outpatient chemotherapy treatments or had finished treatment within last 1 month. Willing to share experiences.</p>	<p>Descriptive statistics were used for profile of participants. Themes identified by team. First- entire team reviewed first 3 interviews Then major themes and coding categories were identified. Transcripts were reviewed to identify and validate important meanings, themes, and patterns related to the women's experiences.</p>	<p>1. Nature of information exchange (interaction modes & power of information) 2. Relationships (roles and responsibilities connectedness)</p>	<p>Participants thought they should be assertive in their care (ask questions and expect answers). Limitation - not all women undergoing treatment for breast cancer are assertive. Education level of patient affects how they interact with health care professional</p>
<p>Subtopic: Adaptation</p>						
<p>Garcia, M., Kalecinski, J., Oriol, M., Bonne, A., Lofti, M., Espenel, S., . . Bourmaud, A. (2018). Cancer patients treated with intravenous chemotherapy for the first time. What are their needs? What do they lack? A qualitative-quantitative mixed approach. <i>Patient Preference and Adherence</i>, 12, 1853-1861. doi: 10.2147/ppa.s169810</p>	<p>Find and affirm needs of patients starting chemo treatment.</p>	<p>Qualitative- Quantitative mixed method. Level 4 What was done: In 2009, interviews were conducted. In 2014, questionnaires were provided.</p>	<p>40 patients in 2009 were interviewed. 97 patients answered questionnaire in 2014.</p>	<p>2009 – themes identified and build interview grid. 2014 – Supportive Care Needs Survey. Descriptive analysis assessed by frequencies.</p>	<p>63% needed help with finding foods that would be good. 67% needed help identifying foods to be avoided. Other needs: Understanding of treatment, affecting the couple, side effects, hygiene/beauty & other tx possibilities.</p>	<p>For the questionnaire, the study is closed questions. Identification and validation of the needs of patients starting IV chemotherapy tx.</p>

					New needs in 2014: activities and leisure, psychological needs, and family relations.	
Şahin, Z. A., & Ergüney, S. (2015). Effect on Symptom Management Education Receiving Patients of Chemotherapy. <i>Journal of Cancer Education J Canc Educ, 31</i> (1), 101-107. doi:10.1007/s13187-015-0801-8	Determine if a planned education event for patients receiving chemotherapy can alleviate side effects. Secondary outcomes are to determine if this increases their quality of life.	Quantitative - quasi-experimental Level 3 What was done: Tests patient educational interventions during chemotherapy, with a secondary aim of focusing on describing symptoms in patients during chemotherapy. Control group vs. experimental group. Experimental group: three educational sessions as well as an educational booklet.	70 patients in control group, 70 patients in experimental group selected from a "non-probability consecutive method." First time receiving chemotherapy. Convenience sample.	Patient's Demographic Questionnaire (PDQ) - collects socio-demographic information of patients (age, gender, education level, and marital status). Chemotherapy Symptom Assessment Scale (CSAS) - assess frequency, severity, and degree of discomfort in three separate parts. Cronbach's alpha = 0.75 for CSAS. Study had Cronbach's alpha of 0.91.	1. Pre/Posttest symptom frequency: symptoms were significantly less common in the post-test experimental group. 2. Pre/Posttest symptom severity: significantly less common in post-test experimental group. 3. Pre/Posttest degrees of discomfort were significantly lower in post-test experimental group. Mann-Whitney U, paired sample	Random sampling was not used. -Same person administered survey as well as delivered the intervention. -Single site study

					t-tests, chi-square, and Cronbach's alpha	
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<p>EBPG #2 - Fatigue</p> <p>Bower, J. E., Bak, K., Berger, A., Breitbart, W., Escalante, C. P., Ganz, P. A., . . . Jacobsen, P. B. (2014). Screening, assessment, and management of fatigue in adult survivors of cancer: An American society of clinical oncology clinical practice guideline adaptation. <i>Journal of Clinical Oncology</i>, 32(17), 1840-1850. doi:10.1200/jco.2013.53.4495</p>	<p>Establishing fatigue guidelines.</p>	<p>Hand searches of published literature and searches of electronic databases Systematic Review, Level 4 What was done/ recommendations: Routine screening for fatigue, H&P collected, Laboratory evaluations. Education & counseling, Observation & Reevaluation, Treatment, Promotion of ongoing self-monitoring</p>	<p>Articles from American Society of Clinical Oncology (ASCO), MEDLINE and EMBASE were reviewed. Number of articles not stated.</p>	<p>N/A</p>	<p>Outcomes: treatment efficacy and quality of life</p>	<p>Limited evidence on fatigue interventions.</p>
<p>Gazendam-Donofrio, S., Hoekstra, H., Graaf, W. V., Weil, H. V., Visser, A., Huizinga, G., & Hoekstra-Weebers, J. (2009). Parent-child communication patterns during the first year after a parent's cancer diagnosis. <i>Cancer</i>, 115 (18), 4227-4237. doi: 10.1002/cncr.24502</p>	<p>Determine how parents and their children communicate after a parent is diagnosed with cancer,</p>	<p>Quantitative, Level 4 What was done: Criteria: newly diagnosed and had children between ages 4-18 living at home, fluent in Dutch, and expected (by physician) to survive for longer than one year. Questionnaires were mailed at 3 different times.</p>	<p>Patients were self-selected if they met criteria and chose to participate in the study. 26 men, 44 women 222 families asked, 112 agreed to participate.</p>	<p>Dutch Parent-Adolescent Communication Scale (PACS). Descriptive statistics for demographical data. Paired t-tests were used to compare couple's functioning and cancer-related distress & comparison between parents' reports of communication with each child in the family.</p>	<p>Outcomes: Cancer-related distress Prospective analyses and associations of change over time. Main goal was a longitudinal study</p>	<p>Limitation: response rate and every day communication not specific to cancer-related communication. Can be used to improve communication in families.</p>
<p>Subtopic: Patient Education</p>						

<p>Alboughobeish, Asadizaker, Rokhafrooz, & Cheraghian (2017). The effect of mobile-based patient education on nausea and vomiting of patients undergoing chemotherapy. <i>Biomed Res</i>, 28(19), p. 8172-8178.</p>	<p>To determine the effect of mobile-based education on nausea and vomiting in patients undergoing chemotherapy</p>	<p>Quantitative, Level 2, RCT of 50 patients. Quasi-experimental (open-label study). What was done: 50 patients were divided into case and control groups by random block method. Control group received routine training. Case group received educational content in form of mobile software.</p>	<p>Randomized to control or case. 16 women, 9 men.</p>	<p>Visual Analog Scale for nausea was utilized and the Khavar oncology scale was used to measure the severity of nausea.</p>	<p>Outcomes: Significant reduction in vomiting frequency and severity of nausea in case group vs. control. Paired t-tests</p>	<p>Limitation: low volume of sample Patients could have been influenced by another way affecting their thoughts. Also, no long-term data due to time constraints.</p>
<p>Rico, T. M., Machado, K. D., Fernandes, V. P., Madruga, S. W., Noguez, P. T., Barcelos, C. R. ... Dumith, S. C., (2017). Text messaging (SMS) helping cancer care in patients undergoing chemotherapy treatment: A pilot study. <i>Journal of Medical Systems</i>, 41(11). doi: 10.1007/s10916-017-0831-3</p>	<p>Evaluate a method of guiding cancer patients, on an outpatient basis, using SMS text messaging</p>	<p>Quantitative, Level 3 What was done: 14 patients participated. Daily text messages were sent with a message in regard to self-care or emotional support.</p>	<p>Voluntary participation. 14 patients were complaint.</p>	<p>Yes/No questions plus some open answer questions.</p>	<p>Outcomes: Patients did understand the content of messages; all considered the text messages to be helpful.</p>	<p>Limitations: Small sample & Lack of control group Useful in the future to utilize different ways of communication</p>

<p>Kochaki Nejad, Z., Mohajjel Aghdam, A., Hassankhani, H., & Sanaat, Z. (2016). The effects of a patient-caregiver education and follow-up program on the breast cancer caregiver strain index. <i>Iran Red Crescent Med J</i>, 18 (3), 1-6. doi: 10.5812/ircmj.21627</p>	<p>Determine if there was an effect on caregivers after a patient-caregiver educational and telephone follow up program.</p>	<p>Quantitative, experimental Level 2. What was done: Randomized to intervention or control. Control group: Usual care Intervention group: 2 personal training sessions and 4 telephone follow up calls with a nurse that has worked in oncology ward for >/ 2 years. Included pretest, intervention, and posttest (tests administered by oncology nurse instead of investigator)</p>	<p>60 patient-caregivers were surveyed (originally 150 were assessed for eligibility, 84 excluded due to not meeting criteria & 6 excluded due to lack of interest). Convenience sample</p>	<p>Caregiver strain index questionnaire (12 yes/no questions). alpha of 0.86</p>	<p>After the intervention, the caregiver strain score was lower. Analyzed with paired t-test</p>	<p>Short intervention period. Recruited newly diagnosed cancer patients</p>
<p>Prescott, L. S., Dickens, A. S., Guerra, S. L., Tanha, J. M., Phillips, D. G., Patel, K. T., ... Bodurka, D. C. (2016). Fighting cancer together- development and implementation of shared medical appointments to standardize and improve chemotherapy education. <i>Gynecologic Oncology</i>, 140, 114-119. doi: 10.1016/j.ygyno.2015.11.006</p>	<p>Develop and implement shared medical appointment for gyn-onc patients starting chemo tx..</p>	<p>Quantitative, Level 3 What was done: patients had a SMART visit where they had lab values reviewed, group tour, pt. ed session with pharmacist or APP, and group discussion.</p>	<p>Voluntary participation; 105 patients completed surveys</p>	<p>Patient satisfaction survey – anonymous</p>	<p>Positive feedback.</p>	<p>Limitations: Not feeling comfortable providing accurate, honest answers. Bias due to differences in experiences. Shared medical appointments have potential to provide better education and more efficient.</p>

<p>Thygesen, M. K., Nicolaisen, A., & Mogensen, O. (2015). Video-, audio-, and computer- mediated education of patients and relatives in gynecologic cancer care: A systematic review. <i>Cancer Nursing</i>, 38(4). doi:10.1097/ncc.0000000000000180</p>	<p>Patient education with varying platforms.</p>	<p>Systematic Review Level 4, non-experimental What was done: Articles were sought from PubMed, EMBASE and PsycINFO via Ovid, CINAHL, EBSCO, and Cochrane Library</p>	<p>4177 hits with 4150 irrelevant articles. 2 randomized trials and 1 case-control study, patient education by healthcare professional with visual or computer-based technologies for gynecologic cancer patients. Convenience sample from the Internet.</p>	<p>Types of intervention and study design were examined.</p>	<p>First systematic review of video-, audio- and computer-based education of women with gynecologic cancer.</p>	<p>Widened search strategy Publication bias</p>
<p>Aranda, S., Jefford, M., Yates, P., Gough, K., Seymour, J., Francis, P., . . . Schofield, P. (2011). Impact of a novel nurse-led prechemotherapy education intervention (ChemoEd) on patient distress, symptom burden, and treatment-related information and support needs: Results from a randomised, controlled trial. <i>Annals of Oncology</i>, 23(1), 222-231. doi:10.1093/annonc/mdr042</p>	<p>Pre-chemotherapy educational intervention to see if improvement in side effects</p>	<p>Quantitative; experimental Level 2 (randomized control trial) What was done: ChemoEd class vs. routine care (prechemotherapy education) to determine what the impact of ChemoEd.</p>	<p>2370 patients screened for eligibility, 309 eligible. 247 patients asked to participate and 192 agreed to participate and completed study. Convenience sample random assignment</p>	<p>Psychological distress - measured by Hospital Anxiety and Depression Scale (HADS) Cancer treatment-related information and support needs - measured with Cancer Treatment Scale (CaTS) Common Chemotherapy-related symptoms - measured with Chemotherapy symptom assessment scale (C-SAS). No alpha reported</p>	<p>Psychological distress - no significant difference Cancer treatment related concerns – Better in ChemoEd group on both scales. Side Effects - no significant differences noted, but occurrence of vomiting as well as degree of vomiting was reduced in patients who received ChemoEd intervention. T-tests were used to identify mean distress levels at baseline. Two</p>	<p>Limited sample size per authors. -Did not assess all chemotherapy types or patients who have received previous chemotherapy. -Few patients with advanced cancer or concurrent radiotherapy. -Only English speaking patients were in study -No home monitoring for recommended self-care information -HADS not ideal scale to monitor</p>

					separate ANCOVA used	
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<p>Scholfield, P., Jefford, M., Carey, M. Thomson, K., Evans, M., Baravelli, C., & Aranda, S. (2008). Preparing patients for threatening medical treatments- effects of a chemotherapy educational DVD on anxiety, unmet needs, and self-efficacy. <i>Support Care Cancer, 16</i>, 37-45. doi: 10.1007/s00520-007-0273-4</p>	<p>Evaluate usefulness of educational DVD on self-efficacy and reduce supportive care needs.</p>	<p>Quantitative, quasi-experimental Level 3 What was done: Intervention group: Chemotherapy naive patients watched a DVD about chemotherapy along with usual care Control group: usual care</p>	<p>50 patients in control group and 50 patients in intervention group Convenience sample Split into 2 groups: self-perceived curative or palliative patients</p>	<p>Satisfaction of information - measured with Likert scale Anxiety and Depression - measured with hospital anxiety and depression scale (HADS) Perceived confidence in coping with cancer (self-efficacy) - measured with Cancer Behavior Inventory (CBI - version 2). Perceived needs of patients - measured with Supportive Care Needs Survey (SCNS) - short form. No alpha reported</p>	<p>HADS - no significant difference found between usual care vs. intervention. CBI self-efficacy - no significant difference found SCNS - no significant difference found. Satisfaction with information received - Palliative patients were more satisfied with information received re: side effects than usual care group Series of independent t-tests were conducted for each outcome (usual care vs. intervention).</p>	<p>Randomized control trial not possible. Convenience sample used Intervention was not sufficiently intense and too general to achieve change.</p>
<p>Subtopic: Quality of Life</p>						

<p>Sajjad, S., Ali, A., Gul, R.B., Mateen, A., & Rozi, S. (2016). The effect of individualized patient education, along with emotional support, on the quality of life of breast cancer patients - A pilot study. <i>European Journal of Oncology</i>, 21, 75-82, doi: http://dx.doi.org/10.1016/j.ejon.2016.01.006</p>	<p>Determine the effect of education and emotional support quality of life of breast cancer patients who are undergoing chemotherapy treatment.</p>	<p>Quantitative & Qualitative, "quasi-experimental" experimental Level 3 What was done: Pre-Assessment, Intervention (6 consecutive weeks of written and verbal individualized patient education, face-to-face discussion, and follow up telephone call), post assessment Vs. No intervention (routine hospital care)</p>	<p>50 Female breast cancer patients, 25 in the intervention group and 25 in the control group Convenience sample</p>	<p>The Functional Assessment of Cancer Therapy - Breast (FACT-B version 4) to measure quality of life of patients.</p>	<p>Improvement in the overall Quality of Life intervention group. Analyzed with independent t-tests</p>	<p>Researcher's bias: nurse provided intervention and collected data. Non-randomized pre-selected block was used. Small sample size.</p>
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<p>Schofield, P., Gough, K., Lotfi-Jam, K., Bergin, R., Ugalde, A., Dudgeon, P., . . . Aranda, S. (2016). Nurse-led group consultation intervention reduces depressive symptoms in men with localised prostate cancer: A cluster randomised controlled trial. <i>BMC Cancer</i>, 16(1). doi:10.1186/s12885-016-2687-1</p>	<p>Determine if there is an effect on prostate cancer patients with the implementation of a nurse-led intervention on the psychological morbidity and quality of life.</p>	<p>Qualitative, experimental, Randomized Control Trial, Level 2 - What was done: Usual care (nurse-led written information about treatment side effects) vs. Intervention (assess patient needs & values, information about prostate anatomy, side effects, treatment and survivorship issues, coach men in evidence-based self care & communication strategies with their treatment team to achieve optimal health status and offer a forum for psychosocial peer support and information exchange).</p>	<p>589 eligible patients, 468 approached, and 337 consented to study. 166 were in usual care; 165 were in intervention group. Randomized sample</p>	<p>Hospital Anxiety and Depression Scale (HADS) and anxious (HADS-A) and depressive (HADS-D). Cancer Treatment Scale (CaTS) Supportive Care Needs Survey (SCNS-SF34-R) Expanded Prostate Cancer Index Composite short form (EPIC-26) no alpha reported</p>	<p>Primary outcomes: 1. Depressive symptoms: all fixed effects were statistically significant. Descriptive analysis indicated slight reduction in depressive symptoms in the intervention group between baseline and end of RT. 2. Anxious symptoms: rate of change for intervention group was not significant. Descriptive statistics indicated reduced anxious symptoms for both groups. Secondary outcomes: 3. Global Distress 4. Prostate cancer-specific HRQoL 5. Unmet supportive care needs 6. Cancer</p>	<p>High standard of usual care. Details of information provided was not assessed. Intervention effects should be considered</p>
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					treatment-related concerns. Pearson's chi-square, Mann-Whitney U-tests	
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<p>Song, L., Rini, C., Deal, A., Nielsen, M., Chang, H., Kinneer, P., . . . Palmer, M. (2015). Improving couples' quality of life through a web based prostate cancer education intervention. <i>Oncology Nursing Forum</i>, 42 (2), 183-192. doi: 10.1188/15.QNF.183-192</p>	<p>Determine if a web-based, couple-oriented intervention would be useful and feasible for prostate cancer patients.</p>	<p>Quantitative, qualitative, and mixed-methods approach. Level 3. What was done: pilot program for an education intervention called Prostate Cancer Education and Resources for Couples (PERC). Pre- and post-quantitative assessments and a post pilot qualitative interview.</p>	<p>26 prostate cancer patients and their partners at an oncology outpatient cancer center at the University of North Carolina.</p>	<p>Quantitative Data: pre- and post-intervention survey. Satisfied with knowledge. Qualitative Data: Post pilot interviews.</p>	<p>Satisfied with knowledge that the gained. PERC described as "an information cornucopia" Descriptive statistics</p>	<p>Small sample size and low recruitment rate. Did not include patients who did not have lacked computer or internet access.</p>
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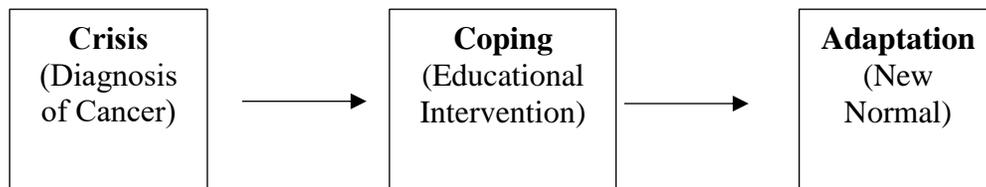
<p>Polat U, Arpacı A, Demir S, Erdal S, Yalcin Ş. (2014). Evaluation of quality of life and anxiety and depression levels in patients receiving chemotherapy for colorectal cancer: Impact of patient education before treatment initiation. <i>J Gastrointest Oncol</i>, 5(4), 270-275. doi: 10.3978/j.issn.2078-6891.2014.034</p>	<p>Evaluate quality of life, anxiety, and depression with educational intervention.</p>	<p>Quantitative, non-experimental descriptive Level 6. What was done: Evaluate life quality, anxiety and depression levels before and after 6-month follow up period in chemotherapy receiving patients with colorectal cancer</p>	<p>65 participants started with the study, but 14 patients transferred and 1 died. 50 participants finished the study. Convenience sample</p>	<p>Participants were scored on 3 different scales: EORTC QLQ-C30 scale (evaluates physical well-being, mental well-being, social life state, metabolic and general sates) EQ-5D scale (self-report scale with evaluation of movement, self-care, routine daily activities, feeling of pain/discomfort, and anxiety/depressio n in 5 questions). Hospital anxiety depression (HAD) measure (defines risk and levels of anxiety and depression) All of these scales have been validated through extensive research No alpha reported for this study's findings.</p>	<p>Patient life quality was better after 6th round of tx compared to 1st round of tx. Patient training and regular follow up had positive impacts on the patient's dealing with disease and on the treatment period, and also positively affected pt life quality. Mean scores were calculated and compared for each scale.</p>	<p>Limitations not specifically stated but can be inferred. This is only one type of cancer with patients going through intense chemotherapy regimens.</p>
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<p>Montazeri, A., Hole, D., Milroy, R., McEwen, J., & Gillis, C. (2004). Does knowledge of cancer diagnosis affect quality of life? A methodological challenge. <i>BMC Cancer</i>, 4 (21).</p>	<p>Deciding if knowledge of cancer diagnosis affects their quality of life.</p>	<p>Prospective study Qualitative study Level 4</p>	<p>238 patients interviewed. 129 confirmed with lung cancer, 109 with chronic respiratory disease.</p>	<p>Nottingham Health profile, European Organization for Research. And Treatment of Cancer Quality of Life Questionnaire, core cancer-specific questionnaire, and EORTC Lung Cancer Questionnaire, and site-specific questionnaire.</p>	<p>No significant differences between patient groups. Mann-Whitney U tests and chi-square test</p>	<p>No limitations noted. Knowing of the cancer diagnosis does not affect QOL survey.</p>
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Appendix D

LoBiondo-Wood's Theory of Stress and Adaptation Diagram

This is a simplified version of LoBiondo-Wood's Theory of Stress and Adaptation including only three concepts from the theory that apply to this evidence-based practice intervention.



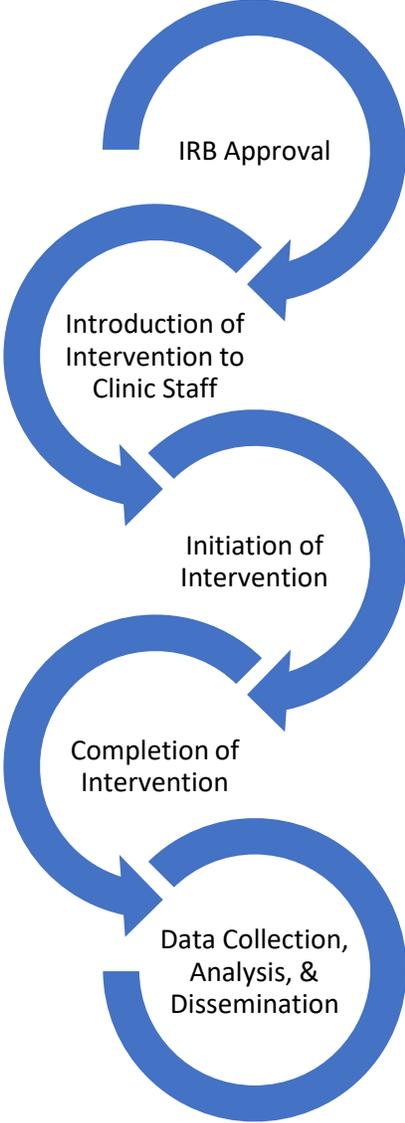
Appendix E

Logic Model

Logic Model for DNP Project					
Student: Kaitlyn Baumgardner					
Inquiry, PICOTS: In adult oncology patients scheduled for first time chemotherapy, does an educational meeting with a student NP prior to chemotherapy, discussing side effects and treatment plan, decrease patient's stress level measured by the distress monitoring tool, pre- and post-test intervention, within 6 months at McFarland Clinic?					
Inputs	Intervention(s)		Outcomes -- Impact		
	Activities	Participation	Short	Medium	Long
Evidence, sub-topics <ol style="list-style-type: none"> 1. Crisis 2. Coping 3. Adaptation 4. Patient Education 5. Quality of Life Major Facilitators or Contributors <ol style="list-style-type: none"> 1. Staff support 2. Education materials in place Major Barriers or Challenges <ol style="list-style-type: none"> 1. Time constraints 2. Willing participants 	EBP intervention which is supported by the evidence in the Input column (brief phrase) Patient (and family) will have meeting with student NP to provide education about chemotherapy regimen and potential side effects.	The participants (subjects) Patients undergoing chemotherapy for the first time and their families (if applicable)	(Completed during DNP Project) Outcome(s) to be measured Primary: Distress level of patient Secondary, if applies: Improved education and management of side effects Measurement tool(s) <ol style="list-style-type: none"> 1. NCCN Distress Monitoring Tool Statistical analysis to be used <ol style="list-style-type: none"> 1. Pre-test and post-test comparison 2. Paired T-Test 	(after student DNP) Outcomes to be measured Distress level	(after student DNP) Outcomes that are potentials <ul style="list-style-type: none"> <input type="checkbox"/> Decreased distress level <input type="checkbox"/> Improved education and standardized education <input type="checkbox"/> Decreased side effects <input type="checkbox"/> Improved management of side effects
	Major steps of the intervention (brief phrases) <ol style="list-style-type: none"> 1. Pre-Test 2. Educational Intervention 3. Post-Test 4. Follow up 	Site McFarland Clinic - Oncology	Time Frame 6 months		
		Consent or assent Needed Yes, prior to pre-test	Other person(s) collecting data (yes,no) No		
		Others directly involved in consent or data collection (yes/no) No			

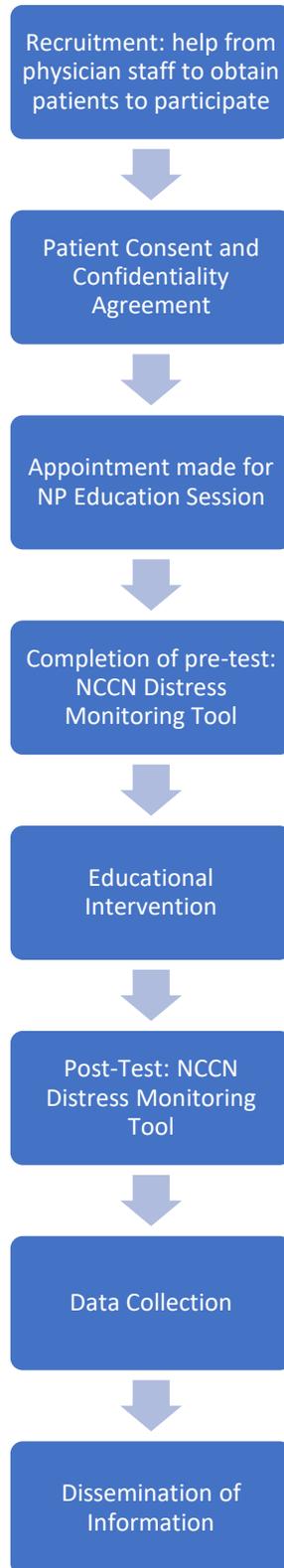
Appendix F

Project Timeline



Intervention Flow Diagram

Appendix G



Appendix H

Intervention Measurement

Measurement Tool: National Comprehensive Cancer Network Distress Thermometer

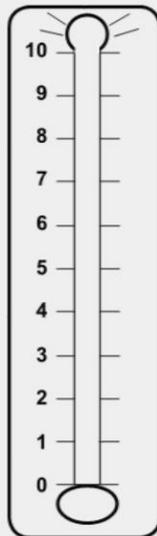


NCCN Distress Thermometer and Problem List for Patients

NCCN DISTRESS THERMOMETER

Instructions: Please circle the number (0–10) that best describes how much distress you have been experiencing in the past week including today.

Extreme distress



No distress

PROBLEM LIST

Please indicate if any of the following has been a problem for you in the past week including today.

Be sure to check YES or NO for each.

- | YES | | NO | | Practical Problems | | YES | | NO | | Physical Problems | |
|---------------------------|--------------------------|--------------------------|--------------------------|--------------------------------------|--------------------------|--------------------------|--------------------------|------------------------|--------------------------|--------------------------|----------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Child care | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Appearance | <input type="checkbox"/> | <input type="checkbox"/> | Bathing/dressing |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Housing | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Breathing | <input type="checkbox"/> | <input type="checkbox"/> | Changes in urination |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Insurance/financial | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Constipation | <input type="checkbox"/> | <input type="checkbox"/> | Diarrhea |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Transportation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Eating | <input type="checkbox"/> | <input type="checkbox"/> | Fatigue |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Work/school | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Feeling swollen | <input type="checkbox"/> | <input type="checkbox"/> | Fevers |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Treatment decisions | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Getting around | <input type="checkbox"/> | <input type="checkbox"/> | Indigestion |
| Family Problems | | | | | | <input type="checkbox"/> | <input type="checkbox"/> | Memory/concentration | <input type="checkbox"/> | <input type="checkbox"/> | Mouth sores |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Dealing with children | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Nausea | <input type="checkbox"/> | <input type="checkbox"/> | Nose dry/congested |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Dealing with partner | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Pain | <input type="checkbox"/> | <input type="checkbox"/> | Pain |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Ability to have children | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Sexual | <input type="checkbox"/> | <input type="checkbox"/> | Skin dry/itchy |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Family health issues | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Sleep | <input type="checkbox"/> | <input type="checkbox"/> | Substance use |
| Emotional Problems | | | | | | <input type="checkbox"/> | <input type="checkbox"/> | Tingling in hands/feet | <input type="checkbox"/> | <input type="checkbox"/> | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Depression | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | <input type="checkbox"/> | <input type="checkbox"/> | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Fears | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | <input type="checkbox"/> | <input type="checkbox"/> | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Nervousness | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | <input type="checkbox"/> | <input type="checkbox"/> | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Sadness | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | <input type="checkbox"/> | <input type="checkbox"/> | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Worry | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | <input type="checkbox"/> | <input type="checkbox"/> | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Loss of interest in usual activities | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | <input type="checkbox"/> | <input type="checkbox"/> | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Spiritual/religious concerns | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | <input type="checkbox"/> | <input type="checkbox"/> | |

Other Problems: _____

Version 2.2018, 02/23/18. The NCCN Clinical Practice Guidelines (NCCN Guidelines®) are a statement of evidence and consensus of the authors regarding their views of currently accepted approaches to treatment. Any clinician seeking to apply or consult the NCCN Guidelines is expected to use independent medical judgment in the context of individual clinical circumstances to determine any patient's care or treatment. The National Comprehensive Cancer Network® (NCCN®) makes no representations or warranties of any kind regarding their content, use or application and disclaims any responsibility for their application or use in any way. The NCCN Guidelines are copyrighted by National Comprehensive Cancer Network®. All rights reserved. The NCCN Guidelines and the illustrations herein may not be reproduced in any form without the express written permission of NCCN. ©2018.

Appendix I



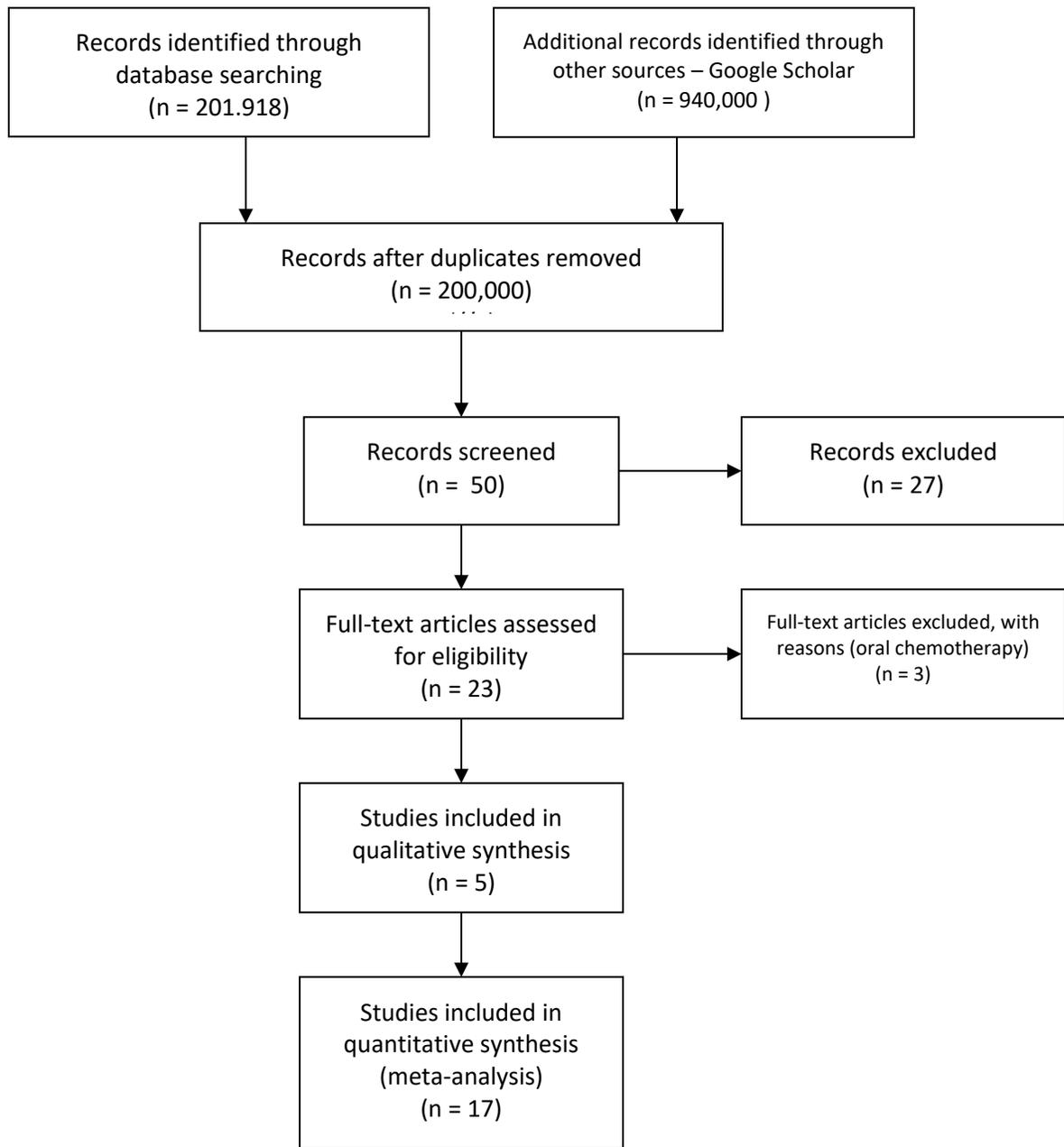
**PRISMA 2009 Flow Diagram
Chemotherapy Patient Education
2000-2019**

Identification

Screening

Eligibility

Included



Appendix J

Recruitment Materials

Dear Participant,

This quality improvement project is intended to standardize and improve patient education for patients undergoing chemotherapy treatment at the William R. Bliss Cancer Center. By participating in this project, you will be asked to have an educational meeting with the Nurse Practitioner to provide information about your cancer treatment, including the side effect and treatment plan specific to you.

We appreciate your help in improving our processes and look forward to serving you better. If you have any questions, please ask to speak with our clinical trials staff or Dr. Debra Prow, who is supervising physician for this project.

Sincerely,

Kaitlyn Baumgardner, RN, BSN
DNP-FNP Student
University of Missouri – Kansas City

Appendix K

IRB Approval

**Institutional Review Board (IRB) Notification**

Date: July 11, 2019

Project: **Oncology Patient Education by a Nurse Practitioner and Stress Reduction**

Project Investigator: Kaitlyn Baumgardner, RN
UMKC Student
Kmd9bf@mail.umkc.edu

Project Location: McFarland Clinic Oncology / Hematology
1215 Duff Avenue
Ames, IA 50010

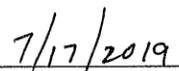
Documents Reviewed: Project Abstract
NCCN Distress Thermometer and Problem List for Patients

The above project has been reviewed and it is considered exempt from full IRB review. This project is eligible for exemption under 45 CFR 46.101(b)(2) from 45 CFR part 46 requirements of the U.S. Department of Health and Human Services (HHS).

This is notification that the Mary Greeley Medical Center Institutional Review Board has been made aware of the project being conducted at McFarland Clinic.



Dario Zaffarano
IRB Chair, Mary Greeley Medical Center IRB
FWA 00000912



Date

Appendix L

Faculty Approval



July 12, 2019

DNP Project Proposal Approval
UMKC DNP Student

This letter serves to provide documentation regarding Kaitlyn Baumgardner's Doctor of Nursing Practice (DNP) Project proposal. Ms. Baumgardner obtained approval for her project proposal, *Oncology Patient Education by a Nurse Practitioner and Stress Reduction*, from the School of Nursing and Health Studies DNP faculty on July 12, 2019.

If we can provide further information, please feel free to contact us.

Sincerely,

A handwritten signature in black ink, appearing to read "Cheri Barber". The signature is written in a cursive style.

Cheri Barber, DNP, RN, PPCNP-BC, FAANP
Clinical Assistant Professor
DNP Program Director
UMKC School of Nursing and Health Studies
barberch@umkc.edu

Lyla Lindholm, DNP, ACNS-BC
UMKC MSN-DNP Program Coordinator
Clinical Assistant Professor
DNP Faculty

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Pre vs. Post	3.449	28	0.002	1.592	.296	.429	1.640
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Appendix P

**UMKC Doctor of Nursing Practice
EBP Project Scholarly Paper, Guidelines
Final DNP Project**

Sections **Description of Content** (proposal content with additional final project content shaded, 25 to 30 pages in body of paper. 100 points)

<p>Title (2 points)*</p> <p><i>Word count per APA</i></p>	<p>Indicates the population, EBP quality improvement intervention, and measured outcome.</p>	<p>Included: Y, N, NA</p> <p>_____</p>
<p>Abstract (5) Key Terms</p> <p><i>2/3 page, 250-word maximum</i></p>	<p>Summarizes the key project components sequentially: introduction of topic indicating significance, purpose, study design, population with number with setting, EBP intervention, outcome(s) measured, results, and implications to nursing or healthcare or impact to society.</p>	<p>__Y__ (8 items)</p>
<p>title heading on 1st page (1)</p> <p>Significance (Economic, Policy, Health System) (1)</p> <p>Local Issue (1)</p> <p>Diversity Considerations (1)</p> <p><i>2 pages for this section</i></p>	<p>(The support for the reason to do this project.)</p> <p>Introduces the specific problem or system dysfunction.</p> <p>Provides the current information and evidence about the problem. (economic, policy, and/or health system).</p> <p>Describes the nature and severity of the problem or system dysfunction within the local project setting.</p> <p>Presents diversity content associated with the population and/or local project setting.</p>	<p>__Y__</p> <p>__Y__</p> <p>__Y__</p> <p>__Y__</p>
<p>Problem, Purpose</p> <p>Problem Statement (1)</p> <p>Intended Improvement with Purpose (1)</p>	<p>(The clearly defined problem, purpose of the EBP intervention, and factors for success)</p> <p>States concisely the primary current problem and any secondary problems.</p> <p>Identifies the current trigger for the change and why the change is important now.</p>	<p>Y</p> <p>__Y__</p> <p>__Y__</p> <p>__Y__</p>

<p>Facilitators & Barriers (2)</p> <p><i>1 page for this section</i></p>	<p>Concludes with primary and any secondary purpose statement(s). Identifies the project facilitators (support systems, stakeholders or shareholders, champions) and the potential barriers to the change.</p> <p>Discusses the project economic component as a facilitator or barrier.</p> <p>Discusses potential factors promoting or inhibiting sustainability of the intervention during the project.</p>	<p>__Y__</p> <p>__Y__</p> <p>__Y__</p> <p>__Y__</p>
<p>Review of the Evidence</p> <p>PICOTS (1)</p> <p>Search Strategies (1)</p> <p>Evidence, Sub-Topics or Themes (6)</p> <p><i>3-4 pages for this section</i></p>	<p>(The existing evidence for this DNP project)</p> <p>States precisely the primary PICOTS and any secondary PICOTS question.</p> <p>Identifies the literature search strategies (broad to focused with direct application to project) including (a) databases, (b) search terms and criteria, and (c) results of search by study design and by level of evidence [Melnyk] with numbers</p> <p>Presents the synthesis and integration of the evidence (studies and guidelines) that support the problem, intervention, and outcome measurement. At least 3 sub-topics with themes with a total minimum of 15 – 20 studies including evidence based guidelines</p>	<p>__Y__</p> <p>__Y__ (all items)</p> <p>__Y__</p>
<p>Theory (2)</p> <p><i>½ page</i></p>	<p>Discusses the theory with concepts and addresses application to the project and intervention.</p> <p>Discusses application of the theory in studies similar to the project.</p>	<p>__Y__</p> <p>__Y__</p>
<p>Methods</p> <p>IRB Approval, Site Approval, Ethical Issues,</p>	<p>(The components of the project. Provides information for others to replicate the evidence based change)</p> <p>States specific IRB approval and site agreement.</p>	<p>Y</p> <p>_____</p>

<p>Funding (2) <i>1/2 page</i></p>	<p>Discusses ethical considerations of privacy, protection including research vulnerable population, and author conflicts of interest.</p> <p>Addresses management of the ethical concerns.</p> <p>Addresses funding.</p>	<p>__Y__</p> <p>__Y__</p> <p>__Y__</p> <p>__Y__</p>
<p>Setting & Participants (1) <i>1/2 page</i></p>	<p>Describes the setting, specifics of the participants with inclusion and exclusion criteria, sampling method, and expected number.</p>	<p>__Y__</p>
<p>EBP Intervention (2) <i>2 pages</i></p>	<p>States the EBP intervention (a brief paragraph).</p> <p>Details the intervention steps (recruitment, intervention sequence including time and participant involvement and who conducts) so others can replicate.</p>	<p>__Y__</p> <p>__Y__</p>
<p>Change Process, EBP (2) <i>1/2 page</i></p>	<p>Discusses the change organizational theory with processes to promote change and EBP model or framework to support the project.</p> <p>Discusses likelihood of sustainability <i>after</i> project completion.</p>	<p>__Y__ (change)</p> <p>__Y__ (EBP)</p> <p>__Y__</p>
<p>Study Design (1) <i>1/3 page</i></p>	<p>Identifies the study design for measuring impact of the EBP intervention on primary outcome and any secondary outcomes.</p>	<p>__Y__</p>
<p>Validity (1) <i>1/2 page</i></p>	<p>Describes aspects of the project that address internal validity (integrity of the data) and external validity (transferability of the intervention).</p>	<p>__Y__</p>
<p>Outcomes (1) <i>1/4 page</i></p>	<p>States the primary outcome and any secondary outcome of the EBP intervention which includes anticipated degree and direction of impact of the EBP intervention on the outcome.</p>	<p>__Y__</p>
<p>Measurement Instrument(s) (2) <i>1/2 - 1 page</i></p>	<p>Identifies and discusses the instrument to measure each outcome of the EBP intervention including tool validity and reliability.</p> <p>Addresses procedures associated with participant completion of the instrument.</p>	<p>__Y__</p> <p>__Y__</p> <p>Y____</p> <p>_____</p>

<p>Quality of Data (1) <i>1/2 page</i></p> <p>Analysis Plan (Statistical) (2) <i>1/2 page</i></p>	<p>Discusses permission for use of the instrument.</p> <p>Explains methods to promote quality of data including a) power analysis of number of participants, b) baseline data and post data with time length of data collection, and c) comparison to published benchmark data.</p> <p>Provides statistical methods to draw inferences from the data which includes pre-post data and demographics, if later applies.</p>	<p>___Y__</p> <p>___Y__</p>
<p>Results</p> <p>Setting & Participants (5) <i>1/2 page</i></p> <p>Intervention Course, Actual (5) <i>1/2-1 page</i></p> <p>Outcome Data by Sub-Topic (10) <i>1 page</i></p>	<p>Reports the time frame, setting, and participants involved.</p> <p>Describes participant data.</p> <p>Reports the major components of the intervention and the associated time periods.</p> <p>Addresses the number of participants at key points.</p> <p>Presents the data with statistical analysis for each measured outcome.</p> <p>Includes summary of missing data.</p>	<p>___Y__</p> <p>___Y__</p> <p>___Y__</p> <p>___Y__</p> <p>___Y__</p>
<p>Discussion</p> <p>Successes, Most Important (4) <i>1/2 page</i></p> <p>Study Strengths (2) <i>1/2-1 page</i></p> <p>Results Compared to Evidence in the Literature (2)</p>	<p>States and describes the most important successes in the study outcomes.</p> <p>Describes elements of the setting (for example, geography, resources, organizational culture, staff, and leadership) that provided support and context for the intervention.</p> <p>Discusses degree of success in implementing the intervention components.</p> <p>Compares and contrasts the study results with relevant findings from specific published studies.</p>	<p>___Y__</p> <p>___Y__</p> <p>___Y__</p> <p>___Y__</p>

<i>1 page</i>		
<p>Limitations</p> <p>Internal Validity Effects (1)</p> <p>External Validity Effects (2)</p> <p>Sustainability of Effects and Plans to Maintain Effects (1)</p> <p>Efforts to Minimize the Study Limitations (1)</p> <p><i>2-3 pages this section</i></p>	<p>Discusses possible sources of confounding factors, bias, and imprecision in EBP intervention processes and collection of data that could affect the study outcomes.</p> <p>Address factors (participant characteristics, setting characteristics) that could affect generalizability or transferability of intervention in achieving intended results.</p> <p>Addresses potential for observed gains to weaken over time and plans for maintaining improvement.</p> <p>Reviews the efforts incorporated into the project to minimize limitation impact on application of results.</p> <p>Assesses the effect of limitations on interpretation and application of findings.</p>	<p>__Y__</p> <p>__Y__</p> <p>__Y__</p> <p>__Y__</p> <p>__Y__</p>
<p>Interpretation</p> <p>Expected & Actual Outcomes (2)</p> <p>Intervention Effectiveness (inferences) (2)</p> <p>Intervention Revision (1)</p> <p>Expected and Actual</p>	<p>Addresses expected results, unexpected results, problems, and failures.</p> <p>Explores possible reasons for differences between observed and expected outcomes.</p> <p>Draws inferences consistent with the strength of the study data about causal mechanisms (components of the intervention, support context factors, type of setting) that assisted with the intervention’s effectiveness.</p> <p>Addresses the types of settings in which the study intervention is most likely to be effective.</p> <p>Suggests intervention modifications that might improve attainment of the outcomes.</p>	<p>__Y__</p> <p>__Y__</p> <p>__Y__</p> <p>__Y__</p> <p>__Y__</p>

<p>Impact to Health System, Costs, and Policy (2)</p> <p>Opportunities, other <i>2 pages for this section</i></p>	<p>Highlights the expected impact and the actual impact of the EBP intervention on health system, policy, and cost.</p> <p>Reviews study estimated costs and actual cost of the intervention and study.</p> <p>Discusses the potential for the economic sustainability of the intervention.</p> <p>Discusses current funding sources for the study.</p> <p>As applies, optional.</p>	<p>Y</p> <p><u> Y </u></p> <p><u> Y </u></p> <p><u> Y </u></p>
<p>Conclusions</p> <p>Practical Usefulness of Intervention (2)</p> <p>Further Study of Intervention (1)</p> <p>Dissemination (1) <i>1 page for this section</i></p>	<p>Discusses overall practical usefulness of the EBP intervention.</p> <p>Addresses further implementation and outcome studies of the EBP intervention.</p> <p>Presents dissemination.</p>	<p><u> Y </u></p> <p><u> Y </u></p> <p><u> Y </u></p>
<p>References (4)</p>	<p>Presents a minimum of 20 research studies including evidence based guidelines. All cited within body of paper. May have additional references: e.g., grey literature, professional organization guidelines which may not be derived from high evidence level research, other. Excludes general references such as textbooks. Use primary sources.</p>	<p><u> Y </u></p>
<p>Appendices (all cited within body of paper,</p> <p>Cost Table for Project (1)</p> <p>Definition of Terms (1)</p> <p>PRISMA diagram</p>	<p>Sequence appendices as introduced in paper, see APA.</p> <p>Cost table.</p> <p>Definitions.</p> <p>PRISMA diagram</p> <p>Evidence table.</p>	<p><u> Y </u> (cost)</p> <p><u> Y </u> (terms)</p> <p><u> Y </u> (PRISMA)</p>

Synthesis of Evidence Table (specific to project) (1)		___Y_ (table)
Theory to Application Diagram (1)	Theory to Application diagram.	___Y__ (theory)
Logic Model (1)	Logic Model figure.	___Y__ (Logic)
Project Timeline Flow Graphic (1)	Project Timeline graphic.	_Y____ (timeline)
Intervention Flow Diagram (1)	Intervention flow diagram.	___Y__ (intervention)
Intervention Materials (example-education program)	Intervention materials, if applies.	___Y____ (materials)
Faculty DNP Project Letter	Faculty DNP Project Approval Letter	
IRB Approval Letter	IRB Approval.	___Y__ (DNP approval letter)
IRB Approved Consent or Informational Letter, if applies	Consent or information letter, if applies.	___Y____ (IRB)
Measurement Tool(s), if applies	Measurement tools, if applies.	___n/a__ (consent)
Permission(s) for Tool(s), if applies	Permission for tool, if applies.	___Y_ (tools)
Data Collection Template (1)	Data Collection template.	n/a _____ (permission)
Statistical Analysis Results Table(s) (4)	Statistical analysis results table(s).	___Y____ (collection)
Other Tables		___Y____ (results, analysis)

*total points = 100 points

** if applies, then must be present to receive paper grade