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Educating Oncology Nurse Practitioners to Provide Basic Palliative Care

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Educating Oncology Nurse Practitioners to Provide Basic Palliative Care

Presented to the Faculty of the School of Nursing

The George Washington University

In partial fulfillment of the requirements for the degree of

Doctor of Nursing Practice

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Abstract

Background: Approximately 1.66 million Americans are diagnosed with cancer each year and another 589,430 die from the disease. As treatment options have expanded, many cancer patients are living longer with worsening symptoms and disabilities and an increased illness burden. These patients are ideal candidates for palliative care.

Palliative care involves care delivered by a team of clinicians with specialty training and a focus on improving the quality of life for patients with serious illnesses. A number of major organizations have made formal recommendations regarding the integration of palliative care into comprehensive cancer care including the American Society of Clinical Oncology and the National Comprehensive Cancer Network. With an advanced education and scope of practice, a holistic orientation, and an evidence-base that substantiates their provision of safe and effective care, nurse practitioners (NPs) are well positioned to improve access to palliative care; yet, many NPs lack basic knowledge of palliative care and do not have competencies to provide such care.

Objectives: This project aimed to measure differences in NPs' knowledge of basic palliative care concepts and their self-rated self-competence in the provision of its care before and after a formal education program.

Methods: This study used a one-group pre-post test design and valid and reliable instruments to measure the effects of an education intervention on NPs' knowledge of basic palliative care and self-reported self-competence. The content for the education intervention, which was drawn from the End of Life Nursing Education Consortium's (ELNEC) Advanced Practice Registered Nurse (APRN) curriculum, was delivered in one 8-hour program. The sample included NPs who practiced in the regional network sites of a National Cancer Institute designated comprehensive

cancer center. Statistical differences were tested using paired *t*-tests, and a Wilcoxon Signed Ranks test.

Results: A total of 37 NPs participated in the program. Knowledge, as measured by the ELNEC KAT increased from a mean of 89.03 to a mean of 90.49. Paired samples *t* tests revealed a statistically significant difference between the mean pre and mean post-test scores ($t = -2.165$, $df = 36$, $p = .037$). Self-reported self-competence as measured by the PCNSC increased from a mean of 3.21 to a mean of 4.10. Paired samples *t* tests revealed that the difference between the mean pre and mean post PCNSC score was statistically significant ($t = -9.202$, $df = 36$, $p = .001$).

Conclusion: A one-day course based upon the ELNEC APRN clinical modules was effective in improving both knowledge, and self-competence of basic palliative care among oncology NPs.

Background

More than 2.6 million people die each year in the United States. Eight of the top ten causes of death are due to chronic diseases such as heart disease, cancer, cerebrovascular disease, chronic lower respiratory disease, renal disease and Alzheimer's disease (Centers for Disease Control, 2016). There are now millions of Americans living with a serious illness, and the numbers are expected to grow substantially over the next 25 years as the baby boomers age (Lentz, 2014). Cancer is the second-leading causes of death in the United States (Centers for Disease Control and Prevention, 2015). Approximately 1.66 million Americans are diagnosed with cancer each year and another 589,430 die from the disease (National Cancer Institute Surveillance, Epidemiology, and End Results Program, n.d.). As the number of cancer treatment options expands, many patients are living longer with an increased illness burden (Quill & Abernethy, 2013). In addition there has been an associated rise in the number of cancer survivors living with symptoms and disabilities as a result of their disease and/or its treatment (National Comprehensive Cancer Network, 2015).

Palliative care, a specialty that grew out of the hospice movement, and that utilizes specialty-trained physicians, nurses, social workers and other providers, is a team-based approach to improving the quality of life for patients with life-threatening or chronic illnesses (Quill & Abernethy, 2013). Historically, palliative care was terminology used to refer to patients receiving end of life care through Medicare's hospice benefit. More recently, palliative care has evolved to encompass comprehensive care that may be provided along with disease-directed therapy (Kazanowski & Kennedy Sheldon, 2014). For patients in the early stages of illness, the palliative care team helps them articulate their values and preferences. For patients with more advanced disease, the palliative care team treats their distressing symptoms, helps them

determine their goals of care and coordinates their care to align with these goals. This ensures a holistic approach to meeting patients' needs and helps them avoid unwanted and expensive crisis care.

There are significant shortfalls in the number of specialty trained palliative care physicians. In 2008 the American Academy of Hospice and Palliative Medicine (AAHPM) convened a task force to assess the palliative care physician shortage. The taskforce identified an acute shortage of physicians specializing in hospice and palliative medicine due to the overall shortage of physicians, the rapid expansion of hospice and palliative care programs, and the paucity of specialty training programs (Lupu, 2010). The estimated deficit of approximately 10,000 palliative care clinicians by the year 2025 has the potential to reduce patient access to high quality symptom control and end of life care (Dahlin, Coyne, & Cassel, 2016).

There are other variables that limit access to palliative care services. For example, most hospitals require an order or request for palliative care consultation from an attending physician. Considerations such as physicians' knowledge of palliative care, as well as their practice patterns can limit referrals and their ability to coordinate this type of care for their patients (Meier, 2011). To compound the problem there is a lack of training in other healthcare disciplines as well, in core principles and practices of palliative care such as assessment and management of pain and other symptoms, communication skills, and providing caregiver support (Meier & Morrison, 2015).

In 1997, the Institute of Medicine (IOM) called for changes to be made in the education of healthcare providers regarding end-of-life care. The IOM specifically recommended that all providers acquire the relevant attitudes, knowledge, and skills to care for the dying patient (Field & Cassel, 1997). In response, and with funding from the Robert Wood Johnson Foundation, the

American Association of Colleges of Nursing (AACN) and the City of Hope National Medical Center formed the End-of-Life Nursing Education Consortium (ELNEC). They developed a national education program on end of life care for nurses. To further meet the growing need for palliative-specific education for advanced practice nurses (APRNs), programs for graduate nursing faculty and APRNs were subsequently developed (Shea, Grossman, Wallace, & Lange, 2010; Dahlin et al., 2017).

Over time it has become apparent that palliative care needs to be initiated earlier in the disease trajectory, or moved “upstream” to when patients begin treatment and be viewed as an element of comprehensive cancer care. In 2001 the National Consensus Project created palliative care guidelines intended to be initiated at time of diagnosis and continue until after death (Lentz, 2014). In a study conducted in patients with metastatic non-small-cell lung cancer, patients were randomized to either receive palliative care concurrent with disease modifying therapy or the standard of care (disease modifying therapy without concurrent palliative care). The patients in the study group had a better quality of life, and lived almost three months longer than the control group (Temel et al., 2010). A number of major organizations have made formal recommendations to integrate palliative care into oncology care as the body of evidence to support early integration of palliative care continues to grow. Guidelines published by the American Society of Clinical Oncology (ASCO), recommend that patients with advanced cancer receive dedicated palliative care services early in the course of disease concurrent with active treatment (Ferrell et al., 2017). The National Comprehensive Cancer Center (NCCN) Palliative Care Guidelines state that the primary oncology team should screen all patients for palliative care needs at each visit, and inform patients and families that palliative care is part of comprehensive cancer care (National Comprehensive Cancer Network, 2015).

A number of strategies have been suggested to ensure patients' palliative care needs are addressed. One model differentiates between generalist palliative care, which can and should be provided by all clinicians, and specialist level palliative care, reserved for the more complex and difficult cases (Quill & Abernethy, 2013). The basic skill sets they state that all providers should possess include:

- Management of pain and symptoms
- Management of depression and anxiety
- Communication skills to discuss:
 - Diagnosis/recurrence
 - Prognosis
 - Goals of treatment
 - Suffering
 - Code status

According to the Hospice and Palliative Nurses Association, “advanced practice registered nurses (APRNs), are a subset of nurses prepared at the graduate level to provide direct patient care with licensure and credentialing reflecting this advanced preparation” (“Hospice and Palliative Nurses Association Position Statement,” 2015, p. 1). APRNs who have specialty training in palliative care provide direct care and coordinate care through leading interdisciplinary teams (Hospice and Palliative Nurses Association Position Statement, 2015). With their advanced education, scope of practice, holistic approach and record of providing safe, effective and quality care, APRNs are positioned to improve access to palliative care (Dahlin et al., 2016). Dyar and colleagues described an effective model of integrated palliative, supportive care, and disease directed therapy utilizing APRNs to improve symptom management and

address advanced directives earlier in the course of the patients' disease. (Dyar, Lesperance, Shannon, Sloan, & Colon-Otero, 2012). This project addressed the needs to prepare NPs to function in this type of care model, by evaluating the impact of a formal education program in palliative care on knowledge of palliative care and self-rated self-competence among NPs practicing in oncology.

Problem Statement

This institution is a National Cancer Institute (NCI)-designated comprehensive cancer center located in New York City. In addition to the main hospital in New York City, there are five regional care network sites located in the surrounding suburban areas. Patients who choose to be treated at the regional sites make the conscious decision not to travel into New York City for their treatments. A fair number of patients start treatment in the city then transfer their care to a regional site, later in the course of the disease when the goals of care are more palliative. The palliative care service is well established at the main hospital in New York City, with both an inpatient consultation service and a number of ambulatory clinics. However, practitioners on this service do not see patients at the regional sites. Patients with complex symptoms must either travel to Manhattan or see a palliative care specialist affiliated with another hospital in their local community. These options potentially place undue burden on the patients, such as hidden costs associated with receiving care in Manhattan (tolls, parking, meals and in some cases lodging) or potential fragmentation of care and communication between the primary oncology team and palliative care providers outside of the organization.

NPs work in a variety of practice settings at each of the regional sites. For example, NPs who work in the surgical clinics see patients at initial consultation and in the post-operative period. They may be involved in reviewing pathology or unfavorable scan results, or they may

be the first contact the patient has when the surgery that was planned cannot be done with curative intent. NPs who work in radiation oncology see patients at initial consultation for palliative treatment, and frequently see patients for urgent visits as a result of treatment related side effects. NPs who work in the medical oncology practices see patients receiving chemotherapy for pretreatment clearance. Triage NPs evaluate patients who call with problems related to their disease and treatment. Many patients sent to the hospital for symptom management are sent by the triage NP after evaluation. The NPs in the regional sites reported that they felt ill equipped to provide basic palliative care to their patients, because of a lack of formal training, and discomfort communicating unfavorable scan results, and/or uneasiness discussing code status.

It was the investigator's hypothesis that an education program targeting the NP group, providing them with knowledge and skills to care for patients with advanced disease, could have a positive impact on the management of patients' symptoms as well as the utilization of hospice and palliative care services. For example, NPs could provide supportive care in addition to disease directed therapy, provide information about advanced directives, and more effectively coordinate patients' care at transitions such as after hospital discharge, or between services. In situations where consideration would be given to sending the patient to the hospital for management of symptoms at the end of life, the triage NP could discuss goals of care during the visit and consider a hospice referral rather than sending the patient to the emergency room, if more consistent with the patients' wishes.

A number of NP education models have been described, including integrating palliative care content into graduate nursing curriculum as well as externship programs post graduation (Dahlin et al., 2016; Shea, Grossman, Wallace, & Lange, 2010). This project evaluated another

approach, a one-day workshop, to provide that education to NPs currently in clinical practice at the regional sites of this cancer center.

Purpose

The purpose of this study was to evaluate the effect of a one-day palliative care education on the knowledge and self-competence of NPs practicing in the regional networks of this NCI-designated comprehensive cancer center.

Specific Aims

The specific aims of this study were to:

1. Measure the knowledge of basic palliative care concepts of NPs practicing at the regional care sites of this cancer center before and after a one-day palliative care education program.
2. Measure the self-rated self-competence of these NPs in providing basic palliative care before and after a one-day palliative care education program.

Research Question

What is the effect of a one-day palliative care education program on the knowledge of basic palliative care concepts and self-competence of oncology NPs?

Significance

Despite the demand for clinicians with specialty training in palliative care, few graduate nursing programs have palliative care specialty programs. In fact there is minimal end-of-life content in graduate nursing programs resulting in graduates lacking preparation to provide hospice and palliative care (Shea, Grossman, Wallace, & Lange, 2010). A survey of academic deans of graduate nursing programs revealed that there was little instruction in palliative care provided in graduate programs despite the fact that these deans viewed palliative care education

as extremely or very important. Approximately one-third of the deans surveyed reported they offered no instruction in their programs. Among the programs in which deans reported instruction was being offered, only 18% contained coursework specific to palliative care and only 35% of the programs had clinical experience. (Jensen-Seaman & Herbert, 2016).

According to the Hospice and Palliative Care Nurses Association, there are currently only seven active palliative care fellowship programs for APRNs or NPs in the United States, and most of these accept 1-3 applicants per year (Hospice and Palliative Care Nurses Association, 2017). Moreover, fellowships may not be suitable for midcareer APRNs, since they usually pay a reduced salary and may require relocation.

Other models for providing education in palliative care have been described including didactic programs ranging from 18 hours to five days, with or without clinical rotations to enhance experiential learning, and online or web-based programs. This project was unique in that it tested a novel third approach, a one-day workshop.

Literature Review

A number of search techniques were used to identify published studies exploring the impact of formal palliative care education and training programs on healthcare professionals' knowledge and self-competence. Searches were done using CINAHL, Medline and Scopus computerized databases. The following keywords were used: palliative care, education, healthcare professionals, and self-confidence, self-efficacy, or self-competence. All searches were limited to full text articles published in English between 2006 and 2017. The searches resulted in 134 titles (CINAHL 3 articles, Scopus 94 articles and Medline 37). A subset of these titles were retained for review based on the following criteria: 1) the study was published in a peer-reviewed journal; 2) the study used an experimental or quasi-experimental design

measuring the effect of an education intervention aimed at nurses or NPs; 3) the outcomes of interest were self-reported knowledge, competence, confidence or self-efficacy. In the end, a total of five studies were relevant to this project and were subsequently reviewed.

All five studies were quantitative and evaluated knowledge, and either self-confidence, or self-efficacy in basic palliative care concepts after a variety of education offerings, using a pre and post-test design. None of the studies, however, addressed self-competence, the outcome of interest. Dahlin, Coyne, & Cassel (2016) measured the effect of a palliative care externship using a 5-day didactic course and relevant clinical rotations, for 48 APRNs on reported knowledge, skills and self-confidence in providing palliative care at 1 month, 6 month and 12 months post externship. Results demonstrated a significant increase in self-confidence at 1-month post intervention, and a statistically significant change in one knowledge item (resolving conflict) at 6 months. Gerlach (2015) measured the effect of a palliative care interactive tutorial on 156 medical students' knowledge, and confidence in providing basic palliative care. Their confidence rate increased from 6% pre-intervention to 69% post-intervention. ($p < 0.0001$). Letizia & Jones, (2012) measured the effect of an online education program in palliative care on the knowledge and self-confidence of 99 NPs providing palliative care in nursing homes. There was a statistically significant ($p < .0001$) increase in the mean pre-test and post-test scores. Linnemann et al. (2016) measured the effect of an 18-hour curriculum on comfort with primary palliative care skills in healthcare professionals providing care to patients with cystic fibrosis using a pre and post intervention survey. There was a statistically significant increase in mean overall comfort level in cystic fibrosis specific palliative care skills. Dahlin et al., (2017) evaluated the confidence level of 135 APRNs after completion of the ELNEC APRN curriculum. Participants rated their confidence in aspects of advanced practice palliative nursing that were

covered in the curriculum using a Likert scale at four timeframes: before the course, immediately following the course, and at 6 and 12 months post-course. More than 90% of the APRNs who participated in the 12 month post-course survey reported feeling moderately to very confident in all aspects of palliative (Dahlin et al., 2017).

Two of these studies (Dahlin, Coyne & Cassel, 2016; Linnemann et al., 2016) did not directly measure knowledge or skills, but instead measured self-confidence as a reflection of those attributes. All the studies reviewed demonstrated significant increases in the outcomes they measured: comfort, confidence or self-efficacy and in three of the studies, knowledge, after the education intervention.

Theoretical Framework

Bandura's social cognitive theory (SCT) provides a framework to conceptualize and evaluate competence. According to this theory, the perception of self-competence influences the acquisition, development and achievement of competence specifically, that perceived self-competence motivates the individual to acquire, develop and achieve competence (Bandura, 2001). In Bandura's self-competence theory, perceived self-competence corresponds to the construct of self-efficacy, as they both are determinants of effort, perseverance, behavior choice and performance (Desbiens & Fillion, 2011). For NPs providing care to patients at the end of life, perceived self-competence or self-efficacy affects their ability to persevere in a difficult situation, as people tend to avoid situations that exceed their capabilities and favor activities that they are capable of performing (Desbiens, Gagnon, & Fillion, 2011). Given this conceptualization, to ensure patients with complex physical symptoms and psychosocial issues receive quality palliative care; education programs must focus not only on competence but perceived self-competence or self-efficacy (Desbiens et al., 2011).

Definition of Variables

Knowledge and self-competence in basic palliative care competencies were measured pre and post education intervention. Measures were drawn from existing, validated instruments for this purpose. Additionally, demographic and workforce variables including number of years in NP practice, as well as previous palliative care experience, and formal training in palliative care were obtained. A list of all study variables and their specifications can be found in Appendix A.

Methods

Design

This study used a one-group pre-post test design to measure the effect of the education intervention on knowledge and self-competence. The education program was conducted on four different occasions. The content was delivered over a period of 8 hours. The program was approved for 7.25 continuing education units (CEUs), based upon 435 minutes of teaching time. A pre and post-intervention assessment measured NPs' knowledge and a survey measured self-reported self-competence about basic palliative care concepts. Testing was done before and immediately after the intervention to determine the effect of the intervention on the subjects. Testing immediately following the intervention was done to reduce attrition and conform to the prescribed timelines.

Sample and Recruitment

The target population in this study was the full census of 43 NPs practicing at the regional network sites of this cancer center. The principal investigator sent an introductory email describing the study to the leadership (NP Coordinators) at each site. In response, the NP Coordinators agreed to provide the NPs with time to attend, and then provided their individual

email addresses. The investigator sent an email to all of these NPs, describing the background and the purpose of the study, along with the objectives and content of the education program. These NPs were informed that their participation was voluntary and that all survey data would be anonymous.

Based upon previous discussions with all stakeholders (nursing and medical leadership in the regional care network and the palliative care service), it was anticipated that the NPs in the Regional Care Network would participate in the study, as they requested this education, were awarded CEUs for attending, and given meeting time to attend.

Setting

The setting for this study was the five regional care sites of this voluntary, non-profit NCI-designated comprehensive cancer center located in the New York area. The inpatient hospital has 472 beds and is located in Manhattan, as are four other outpatient centers. There are five regional network (suburban) sites in addition to the ambulatory facilities in Manhattan. Two of the sites are located in New Jersey, one in Westchester County and two on Long Island. The training was conducted at two of the regional sites (Westchester and Monmouth New Jersey). Those sites were chosen because they were centrally located, had conference rooms large enough to accommodate the class, and were open on Saturdays, which was when the programs were offered.

Intervention

The education intervention was drawn from the five clinical modules of the ELNEC APRN course, which cover the following content areas: overview of palliative nursing, pain management, symptom management, communication, and final hours with ethical

considerations. The ELNEC APRN curriculum differs from the original ELNEC curriculum (now called the core curriculum), in that there is greater emphasis on assessment and management of symptoms and pharmacologic interventions, more case studies, adaptation of role playing so that it is more appropriate for APRNs (breaking bad news, leading a family meeting and speaking to a physician who is resistant to palliative care), and additional content pertaining to APRN role development and leadership. The investigator, who was previously credentialed as an ELNEC trainer, and received training in the delivery of the APRN curriculum, served as the course instructor, along with the NP Coordinator/Program Manager of the Palliative Care Service, who taught the modules about pain and communication. To ensure fidelity, content was delivered as outlined in the ELNEC modules, utilizing the slides, lecture notes and case studies provided. The content was delivered over one day, with all of the participants attending in person. Although participants were made aware that their participation in the study was voluntary and they could withdraw from the study at any time, in order to receive CEUs, participants were informed that they were required to stay for the entire program, which is standard procedure for any continuing education program that awards CEUs.

Instruments

Three different instruments were used in this project. Participants completed a demographic information sheet, the 50-item version of the ELNEC Pre/Post assessment, and the 50-item Palliative Care Nursing Self-Competence Scale.

The following demographic and work-related data were collected: gender, age, level of education, years practicing as an NP, certification, work setting, palliative care experience and type of palliative care training.

The ELNEC pre/post assessment 50-item version (Appendix B) was used to assess knowledge of basic palliative care concepts. This 50-item multiple choice, paper and pencil assessment tool was derived from the original 109-item knowledge assessment tool developed by the ELNEC faculty to evaluate participant mastery of the ELNEC modules. The time to complete the original 109-item tool averaged two hours, and was perceived as burdensome. So, nursing faculty at Fairfield University, in collaboration with ELNEC, developed the 50-item version. Items with the highest item-to-total correlations from the original tool were selected to represent each of the nine domains reflected in the instrument. Based on testing, scores on the 109-item and 50-item versions were highly correlated ($r=0.92$) and the total scale internal consistency estimate for the 50-item version (Kuder Richardson (KR) 20= 0.84) surpassed the 0.80 standard (Lange, Shea, Grossman, Wallace, & Ferrell, 2009). Subjects in this study were asked to complete the instrument by selecting the correct response from among the four provided. Each item was scored as either correct or incorrect. Individual scores were calculated based upon the percentage of questions answered correctly. Scores ranged from 0 to 100%. A score of 80% or higher indicated sufficient mastery of the ELNEC content, as determined by the researchers after reviewing a large sample of students (Lange, Shea, Grossman, Wallace, & Ferrell, 2009).

The Palliative Care Nursing Self-Competence Scale (PCNSC) (Appendix C) was used to measure self-competence about basic palliative care concepts on a Likert scale pre and post intervention. This paper and pencil tool was comprised of 50 items covering 10 dimensions of palliative care (physical, psychological, social, cultural, holistic and spiritual dimensions, functional status, ethical and legal issues multidisciplinary collaboration, communication and death and dying) (Desbiens & Fillion, 2011). The response scale for each item ranged from 0 (not at all capable) to 5 (highly capable). A score was computed for each of the 10 dimensions

using the mean score of the five questions in that dimension, and a total self-competence score was computed using the mean for each of the 10 dimensions. Although the mean scores for each dimension was computed, only the results of the total scores were analyzed and displayed.

Data Collection Procedures

Each participant was given a study packet at the start of the program, containing a total of 5 items: 50-item ELNEC pre and post knowledge assessment tools (2), PCNSC (2), and a demographic worksheet (1). The packets as well as the individual items were numbered identically so that they could be matched if separated. The ELNEC pre and post assessments and the PCNSC were completed immediately prior to and immediately following the intervention/education program. The pre and post surveys were printed on different colored paper to help participants distinguish them easily. All data collection was conducted in the classroom where the program was offered. Subjects were not obligated to complete the tools in order to obtain the CEUs. The NP Coordinators for the sites where the programs were offered distributed the packets, proctored the examinations, and collected the instruments, ensuring the principal investigator was not aware which if any participants elected not to complete the tools.

Data Analysis Plan

The study packets were stored in a locked file in the investigators office, until they were entered into the secure REDCap database, where they remained until destroyed at the completion of the study. REDCap (Research Electronic Data Capture) is a data management software system supported by the Office of Clinical Research at MSKCC. REDCap is a tool for the creations of customized, secure data management systems including web-based data entry forms and reporting tools. It maintains a full audit trail of data manipulation and is maintained on a secure server, with access granted to only the investigator and the site administrator. Data were

then entered into SPSS 24 by the investigator and double-checked for accuracy by another NP Coordinator not affiliated with the study. All data were reported in aggregate, and were not linked to information collected with the tools.

Descriptive statistics were used to describe the sample and its characteristics (e.g. demographic and workforce items). Summary data were generated for the knowledge assessment and self-competence tools including the mean, median and standard deviation for the (1) pretest, (2) post-test, and (3) difference between the pre-test and post-test (i.e. “difference data”).

To test the primary research question regarding the effect of a formal education program in palliative care on the knowledge of basic palliative care concepts and self-competence of oncology nurse practitioners differences in respondents’ pre-test post-test scores were visually inspected and tested for normality. The sampling distributions were normal, so paired t-tests were used. To account for the possibility of non-normal distributional characteristics, non-parametric test, Wilcoxon Signed Ranks tests were also run.

Ethical Considerations

The subjects were recruited using a standardized email. They were assured from the outset that their participation was voluntary, and that they could withdraw from the study at any time. Their privacy was maintained in that all data was de-identified. As such the study posed a minimal risk to the participants. The study received exempt status from the hospital’s IRB, in that it was conducted in an established and commonly accepted educational setting, involving normal educational practice, and no identifying information was collected or stored. No consent was required as the study posed minimal risk to the participants. The study revived concurrence with the exempt status from the George Washington University’s IRB.

Results

Participant Demographic Characteristics

Across the five sites, 37 of the 43 eligible NPs participated in the program for a response rate of 86%. All of the participants were female. Nearly three-quarters of respondents were between the ages 35 -<55 (73.0 %). Less than 10% were between 25-<35 (n=3, 8.1%). The majority of respondents had obtained a Masters Degree (n=31,83.8%) as their highest level of education. Approximately 11% of respondents had obtained doctor of nursing practice degrees (DNP: n=4, 10.8%) and 5.4% had obtained doctor of philosophy degrees (PhD: n=2, 5.4%). Descriptive statistics are provided in Table 1.

Knowledge of Palliative Care Concepts

The pre-test scores on the ELNEC KAT ranged from 56 to 100%, with a median of 90, a mean of 89.0% and a standard deviation of 7.81 (Table 2). The post-test scores ranged from 68 to 100% with a median of 92, a mean of 90.5% and a standard deviation of 6.35. Paired samples *t* tests revealed that the difference between the mean pre and mean post-test score was statistically significant ($t = -2.165$, $df = 36$, $p = 0.037$). Wilcoxon signed-ranks test confirmed this finding.

Self-Competence

The pre-program PCNSC scores ranged from 1.14 to 4.60 with a median of 3.34, a mean of 3.21 and a standard deviation of 0.69 (Table 2). The post-program PCNSC scores ranged from 2.36 to 5.00 with a median of 4.02, mean of 4.10 and a standard deviation of 0.48. Paired samples *t* tests revealed that the difference between the mean pre and mean post PCNSC score was statistically significant ($t = -9.202$, $df = 36$, $p = 0.001$). Wilcoxon signed-ranks test confirmed this finding.

Discussion of Results

This project sought to evaluate the effect of a one-day palliative care education program on the knowledge and self-reported self-competence of oncology NPs. Although the sample size was small, it was adequate for testing and results demonstrated a statistically significant increase in both knowledge and self-competence after subjects attended a one-day course in palliative care concepts. These results are consistent with those achieved with other models where the education programs ranged from 18 hours to 5-days. It is hoped that the increased self-competence will enable the NPs to persevere in difficult situations, in other words to have the goals of care discussions and the difficult conversations, as well as to manage symptoms and issues they did not feel comfortable addressing in the past, consistent with Bandura's theory.

The involvement of the NP Coordinator/Program Manager for the Palliative Care service was key to the success of this program, as she is a clinical expert and thought leader in the field of palliative care. Her participation also presented an opportunity for collaboration as it afforded her the chance to meet the NPs in attendance, get a sense of their caseloads, and better understand the challenges they face coordinating care for their patients. This helped the design of future education programs and interventions intended to enhance collaboration between the regional sites and the palliative care service.

Study Limitations

The sample size was limited as only the 43 NPs practicing in the Regional Care Network, who were the intended targets of the intervention, were invited to participate. Data were only collected immediately following the educational intervention. This study did not look at whether the knowledge and self-competence persisted past that date, however this could be addressed in future studies. The total scores on both tools were reported, but the differences for each of the

domains (pain, symptom management, communication etc.) were not reported separately. Further analysis may yield areas where future education and support is required to ensure competency in each of the domains, and inform future educational offerings.

Implications and Recommendations

The feedback from the participants in this project indicated that 8.1% of them had received formal education in palliative care as part of a degree program, and only 2.7% had done a clinical rotation in palliative care. Despite its limitations, this project demonstrated that a one-day program based on the ELNEC APRN clinical modules resulted in statistically significant increase in knowledge and self-reported self-competency among the oncology NPs who attended. A number of professional organizations recommend that palliative care be offered to patients earlier in their disease trajectory and become part of comprehensive cancer care. However, education efforts have lagged behind these recommendations as evidenced by the paucity of formal education in basic and graduate nursing programs. To address this need, a number of models have been suggested to integrate palliative care content, including integration of the ELNEC modules into graduate nursing curriculum (Kriebel-Gasparro & Doll-Shaw, 2017). There will continue to be a gap in nurses and NP knowledge in palliative care until content in palliative care concepts become a standard part of nursing education. Until that time, the importance of providing practicing NPs with education and support to meet the needs of their patients cannot be overstated.

Conclusions

Patients with cancer have an ever-expanding number of treatment options. Many are now living longer, but may live with a significant symptom burden from disease and treatment. NPs, with a demonstrated ability to provide high quality, safe and cost effective care are in a pivotal

position to provide basic or primary palliative care to patients in their caseload. There is an urgent need to provide education to practicing NPs so they can effectively and competently deliver basic palliative care to their patients. As evidenced by this project, the clinical modules of the ELNEC APRN are an effective way to provide this education. Further study is needed to see whether the knowledge and self-competence can be sustained over time and if it helps lead to practice change and improvement in patient satisfaction and outcomes.

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Appendix A
Study Variables

Table 1: Variables Table

<i>Dependent Variable</i>			
Nurse Practitioner Knowledge of Palliative Care Concepts	Knowledge of Palliative Care Concepts	Knowledge based upon test scores on the ELNEC 50-item Knowledge Assessment which will be done pre and post intervention. A score of 80% indicates sufficient mastery of the content.	Scale
Nurse Practitioner self-competence	Self-competence	Nurse practitioner report of self-competence before and after educational intervention as measured by a 50-item survey. Scores range from 0 (not at all competent) to 5 (highly competent)	Scale
<i>Independent Variable</i>			
Completion of formal educational program in basic palliative care concepts.	Educational program in basic palliative care concepts	1. Yes 2. No	Binary
<i>Demographic Information</i>			
Gender	Biologic sex	1. Male 2. Female	Nominal
Age	Chronological age in years	1. 25 - <35 2. 35 - <45 4. 45 - <55 5. 55 or older	Interval
Level of Education	Level of education completed	1. MSN 2. DNP 3. PhD	Nominal
Practice Site	Site in Regional Care Network where NP practices	1. Commack 2. Rockville Centre 3. West Harrison 4. Monmouth 5. Basking Ridge	Nominal
Years experience in NP role	Length of time practicing as an NP	1. <6 months 2. 6 months-2 years	Ordinal

		<ol style="list-style-type: none"> 3. >2 years to 5 years 4. >5 years to 10 years 5. >10 years 	
Practice Specialty	Oncology Practice specialty	<ol style="list-style-type: none"> 1. Basking Ridge 2. Commack 3. Monmouth 4. Rockville Centre 5. Westchester 	Nominal
Advanced practice certification	Primary certification	<ol style="list-style-type: none"> 1. Adult NP 2. Adult/Gerontological NP 3. Gerontological NP 4. Family NP 5. Acute Care NP 	Nominal
Advanced Practice Oncology Certification	Advanced practice specialty certification in oncology (AOCN, AOCNP, AOCNS)	<ol style="list-style-type: none"> 1. Yes 2. No 	Binary
Palliative care experience	Previous experience in palliative care	<ol style="list-style-type: none"> 1. None 2. As RN 3. As NP 	Ordinal
Palliative care education	Received any palliative care training	<ol style="list-style-type: none"> 1. None 2. Continuing education 3. Education in degree program 4. Clinical experience 	Ordinal

Table 1

Sample Characteristics

Age	
25-<35	3 (8.1%)
35-<45	16 (43.2%)
45-<55	11 (29.7%)
55 or older	7 (18.9%)
Gender	
Male	0 (0%)
Female	37 (100%)
Education	
Masters Degree	31 (83.8%)
DNP	4 (10.8%)
PhD	2 (5.4%)
Practice Setting	
Westchester	10 (27.0%)
Commack	8 (21.6%)
Monmouth	8 (21.6%)
Rockville Centre	6 (16.2%)
Basking Ridge	5 (13.5%)
Years of NP Experience	
<6 months	1 (2.7%)
6 months-2 years	6 (16.2%)
>2 years-5 years	7 (18.9%)
>5 years-10 years	9 (24.3%)
>10 years	14 (37.8%)
Specialty	
Medical Oncology	17 (45.9%)
Surgical Oncology	13 (35.1%)
Radiation Oncology	4 (10.8%)
Other	3 (8.1%)
Certification	
Adult NP	12 (32.4%)
Adult/Gerontological NP	11 (29.7%)
Gerontological NP	2 (5.4%)
Family NP	9 (24.3%)
Acute Care NP	3 (8.1%)
Oncology Specialty Certification	
Yes	6 (16.2%)
No	31 (83.8%)
Previous Palliative Care Experience	
None	19 (51.4%)

As an RN	12 (32.4%)
As an NP	6 (16.2%)
Prior Education in Palliative Care	
None	11 (29.7%)
Continuing Education	11 (29.7%)
Attended ELNEC Course	11 (29.7%)
Education in Degree Program	3 (8.1%)
Experience in Clinical Rotation	1 (2.7%)

Table 2

Differences in Subjects' scores pre and post education intervention

Subject	ELNEC KAT Pre-test	ELNEC KAT Post-test	PCNSC Pre-test	PCNSC Post-test
1	92	96	4.06	4.90
2	82	86	3.04	4.02
3	96	94	2.22	3.92
4	96	94	2.70	3.76
5	84	88	2.28	4.68
6	94	92	1.14	2.36
7	90	96	2.42	2.94
8	96	94	3.16	3.96
9	92	84	4.60	4.62
10	92	92	2.68	4.35
11	84	94	2.34	4.02
12	86	86	3.76	4.02
13	84	90	3.88	3.98
14	88	88	2.82	4.28
15	84	92	4.14	3.92
16	90	88	3.72	4.10
17	88	88	3.81	5.00
18	94	96	3.24	4.00
19	94	98	3.78	4.76
20	96	88	3.76	4.00
21	94	98	2.32	4.38
22	90	94	3.70	4.40
23	94	94	3.38	4.54
24	80	80	2.38	4.00
25	88	88	3.36	3.70
26	90	92	3.64	4.10
27	56	68	3.00	4.15
28	80	84	3.54	4.00
29	98	98	3.37	4.00
30	78	78	2.82	4.00

31	92	92	3.78	4.02
32	88	92	3.12	3.84
33	86	90	3.02	4.00
34	92	92	3.88	4.54
35	100	100	3.67	4.02
36	98	98	3.34	4.36
37	88	86	3.22	4.20
Median	90	92	3.34	4.02
Mean	89.0	90.5	3.22	4.10
SD	7.81	6.35	0.69	0.48
t	2.165		9.202	
df	36		36	
p-value	0.037		<0.001	