

2022

Food Insecurity in Oncology Patients: An Educational Intervention for Nurses

Chinelo Pernilla Onwuazombe
Walden University

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Walden University

College of Nursing

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Chinelo Pernilla Onwuazombe

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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Walden University

2022

Abstract

Food Insecurity in Oncology Patients: An Educational Intervention for Nurses

by

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MSN, Indiana State University, Terra Haute, Indiana

BSN, Samuel Merritt University, Oakland, California

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

May 2022

Abstract

Food insecurity is not having enough food or resources or not being able to procure nutritious foods. An observation that nurses in one oncology clinic rarely assessed their patients for food insecurity as part of their regular assessment led to the development and testing of an educational intervention for nurses which was to create awareness on the importance of assessing food insecurity among oncology patients and to learn to use the Household Food Insecurity Assess Scale (HFIAS) in assessing patients. Summative evaluation was done using a pre/and posttest. The Maslow's hierarchy of needs and the Virginia Henderson nursing need theories were used to explain how food insecurity was a vital part of physiological needs and these physiological needs must be met to achieve optimal health. The Doctor of Nursing essentials I and IV were used to relay the need to take care of these patients by engaging in their wellbeing and through collaboration with other professions handling this dilemma on food insecurity. Twenty oncology nurses-participants responded to the pretest and 16 participants responded to the posttest. The findings based on the chi-square and z -test analysis, showed a significant difference in areas on implementation of food insecurity assessment, providing the right tools through the use of HFIAS, and referral/ resources for food insecurity assessment. The overall findings with a p-value of .00375 which is significant at $p < .05$ suggests the educational program was successful and showed increase in knowledge after the educational intervention. With future translation of the HFIAS tool and resource flier into additional languages to improve the readability of the tool, this education has the potential to effect positive social changes for diverse patient population.

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Dedication

I wish to dedicate this doctoral project to my late parents Prof. Chudi and Mrs. Elizabeth Nwabachili who died 4 months apart last year. You two were my backbone and contributed immensely to my project. Daddy was never tired of reading through my paper, correcting, canceling, and making suggestions in order to make this project an excellent one. Mummy was a very patient one, reading out my paper to dad because he was physically challenged by his hearing and sight at his later years. I will not talk about my educational journey without mentioning the two of you. You were both my mentor and you brought me up to understand the value of education. Your legacy lives on and I would forever cherish the indelible mark you have left behind and will extend same to our children. You are forever in our hearts, I love you mum and dad and may your souls continue to rest in peace, Amen.

Acknowledgments

I wish to first show my gratitude to our heavenly father who without which I would not have been able to achieve this feat. He has guided, protected and made it possible for me to be where I am today. Thank you, Lord. I want to also extend my gratitude to my husband Dr. Ifeanyi Onwuazombe, my lovely children Lotanna, Kamsie and Ifeanyi jnr. for just being there for me, encouraging me and helping me out when life became unbearable especially during the loss of my mummy and daddy. My special thanks go to my late parents Prof. Chudi and Mrs. Elizabeth Nwabachili and to my siblings, Ifeoma and CC who contributed immensely throughout my academic journey through their selfless sacrifices, financial contributions, emotional support, and advice. I owe you, my success.

I also wish to extend my gratitude and appreciation to my faculty at Walden University, Dr. Rachel Pitman, who was always guiding me through my project, never tired of answering my numerous emails, engaging in skype calls even when not so convenient for her, and the prompt reply to my papers. She was not only concerned about schoolwork but was also concerned about my personal welfare. To Dr. Anna Maria Hubbard, she was so quick to read my papers and give constructive ideas and corrections and went out of her way to create time for my oral presentation and my special thanks also go to Dr. Maria Ojeda who also gave constructive suggestions.

Finally, I wish to thank Dr. Anita Catlin, the research coordinator at the target site who accepted me as her student after a whole year was wasted searching for preceptors and was so good in giving constructive advice, correcting papers, proof reading,

arranging presentations, thank you for believing in me. I also wish to extend my gratitude to all the staff at the target site who helped me in one way or the other and to my dear friends Dr. Peterson E. Pierre and Dr. Cheryl Tugman for your selfless energy in answering all my calls, text messages, making suggestions and proofreading my papers. This journey will not be complete without mentioning you all. Thank you.

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Section 1: Nature of the Project

Food insecurity refers to a social and economic condition that leads to limited access to inadequate food or ability to procure enough nutritious food (Jernigan et al., 2017; U.S. Department of Agriculture [USDA], 2019). People worldwide have food insecurity (Carollo, 2011), including 50 million Americans (Parpouchi & Heamer, 2018). Nurses in the United States are only now looking at the social determinants of health and realizing that a patient's access to food impact health outcomes (Wetta, 2017). Food insecurity has led to increases in emergency room visits, longer stays in hospitals, and many hospitalizations (Berkowitz et al., 2018).

Further, nutritional deficiencies affect about 15–40% of cancer patients and survival rates may also be hindered (De la Penas et al., 2019). This is a staff education project for nurses using the Household Food Insecurity Assessment Scale (HFIAS) as a tool for assessing for food insecurity among oncology patients. The practice focused question for this project is “Will educating the nursing staff on assessing for food insecurity lead to improved assessment and referral for oncology patients?” Assessment and referral of those in need will allow nurses to extend their skills. The project will promote social change by addressing the nurses' inadequate assessment of food insecurity among cancer patients, thus impacting the community members at the project site. The results of this project can also be used to develop additional educational sessions on how to assess for food insecurity and can be disseminated throughout all of the medical clinics in the facility.

Problem Statement

The nursing practice problem is the inadequate assessment of food insecurity among oncology patients. Due to non-assessment, nurses are unaware if the patients are able to procure nutritious foods to keep healthy or use their limited income to get food instead of meeting medical needs. When cancer patients are food insecure, they may postpone their medical care and may not be able to afford the medications prescribed (Gany et al., 2015). Food insecurity is one of the factors associated with cancer deaths (Davio, 2018).

The local nursing practice problem is that assessing for food insecurity among oncology patients has not been the practice in the oncology clinic, so there is a risk that inadequate nutrition may affect treatment regimen adherence and contribute to poor health outcomes. Cancer mortality rate is about 18.8% in this community (Solano Health Assessment Summary, 2016), and there are many homeless and food insecure individuals. This prompted the need to assess individuals from this community for food insecurity and to provide avenues where nutritious foods can be accessed. According to the oncology unit manager, the local nursing practice problem is that nurses do not assess oncology patients for any social determinants of health such as food insecurity. Other research has shown that about 25% or fewer of the nurses' study inquired about food quality, and less than 13% of the nurses inquired about food sufficiency from their patients (Flores & Amiri, 2019). Though screening may not solve the issue of food insecurity, it can provide an opportunity for the nurses to provide the necessary referrals needed to alleviate food insecurity. Screening could also help to identify many stressors

such as violence, depression, and housing instability associated with food insecurity (Flores & Amiri, 2019).

Purpose Statement

The meaningful gap in nursing practice this project addresses is the lack of routine assessment for food insecurity among oncology patients. Food insecurity has resulted in poor health outcomes and non-adherence to treatment (Gundersen & Ziliak, 2015). In a project carried out on 22 nurses to assess their knowledge on food insecurity, it was found that the nurses had no prior knowledge of what food insecurity is and were not assessing their patients for food insecurity (Simon & Debrew, 2021). Thus, nurses need more education on how to assess patients for food insecurity and to provide interventions (referrals) and address the situation. This project is an educational intervention that will help create awareness for the nurses on the need to assess for food insecurity among oncology patients as part of their routine health assessment and provide an avenue of having a holistic view of their patients. The project will also help to provide resources for food insecure oncology patients through various avenues.

Nature of the Doctoral Project

I gathered evidence from systematic reviews published in peer reviewed journals, literature reviews within the last 5 years such as Elton B. Stephens Co. (EBSCO), cumulative index of nursing and allied health literature (CINAHL), PROQUEST, OVID Medline and Cochrane Database of Systemic Reviews. Other sources of data such as reports, including the most recent statistics would be from the USDA, UpToDate, Centers for Disease Prevention and Control, California Department of Food and Agriculture and

Medline journals. The literature sources will be current (within the last 5 years) and will be used to ascertain highest quality primary research evidence for food insecurity and assessment in order to show the nurses the impact or problems that emanates when nurses fail to assess food insecurity in oncology patients. The keywords include *food insecurity, cancer, oncology clinicians, food insecurity access scale, adverse health effects, malnutrition, and assessment.*

I will also conduct an educational training of food insecurity assessment for nurses and will evaluate the nurses through a pre- and post-test. This project will provide an educational intervention for nurses to (a) create awareness on the importance of addressing food insecurity in oncology patients and the use of the HFIAS tool, (b) enhance nurses' knowledge on one of the areas of social determinants of health, and (c) provide resources for referral. The assessment tool will help nurses look at the patient from a more holistic point of view instead of just treating the physical health needs for the day. In assessing for food insecurity, the nurses are able to get comprehensive knowledge of their patients which may guide the type of care given, the actual needs of the patient and the health status and functionality. The results will be analyzed in order to show nurses' current practice for assessing for food insecurity (pretest), and what they have learned about how to assess food insecurity with the use of the HFIAS tool (posttest). The HFIAS as introduced as a tool for addressing food insecurity among oncology patients. The HFIAS is a 9-item questionnaire that has been tested for validity and reliability and will be available for use by nurses and other clinicians to improve food

insecurity assessment. I also created an information sheet that shows how to access free and low-cost food for purposes of referral should food insecurity be identified.

Significance

The stakeholders are the staff nurses and nursing management as they are all involved in providing treatment for cancer patients and would be invited to the educational session. The nurses may gain increased knowledge on the health and socioeconomic status of their patients through this staff education program and will enhance the quality of care given to these patients. The HFIAS tool will enhance practice as it will provide a reliable and valid tool for the nurses to adequately assess patients for food insecurity. The nurses can then look at oncology patients from a holistic view instead of just basing their health care needs on immediate physical assessment. The project may also help the nurses understand how food insecurity can impact health outcomes.

Although this additional health assessment may mean more workload for the nursing staff who are already pressed for time, the benefit from assessing food insecurity outweighs the consequences of not assessing for food insecurity in oncology patients. Every change in practice gets resistance, but the management team at the target site is supportive of the importance of assessing for food insecurity in cancer patients and are willing to help with implementing the change at the project site. To make it easier for the nurses, the HFIAS will be given to patients at check in to fill out and addressed during the health assessment. This will help to reduce the workload for the nurses. This improvement in practice may help the patients fulfill their basic need for food, which

may have kept them from adhering to treatment regimens and overall may lead to improved health status and good patient outcome.

Food insecurity assessment is also significant in nursing practice and relates to Doctor of Nursing Practice (DNP) essentials as it addresses foundational competencies at the core to nursing practice (American Association of Colleges of Nursing, 2006). Essential I: Scientific Underpinnings for Practice suggested that well-being, life processes, interactions, life events, and health status are either affected positively or negatively (American Association of Colleges of Nursing, 2006). Food insecurity involves nursing actions through health assessment of food insecurity in oncology patients by which their health is affected positively, thereby creating better health. This essential also involves the use of evidence-based knowledge in enhancing quality of care and guiding nursing practice. Additionally, this project relates to Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes (American Association of Colleges of Nursing, 2006). The current healthcare system requires the collaboration of all health care providers to achieve optimal health. Food insecurity assessment is not only for nurses but should also involve doctors, social workers, and case managers. Engaging in collaboration of care through providing safe, effective and efficient care and using evidenced- based knowledge through concepts and theories which guide nursing practice will help enhance continuity of care, improve adherence to treatment regimen, and improve health status of oncology patients. Food insecurity assessment of oncology patients is one of the ways this can be achieved. If this project is successful, the findings may apply not only to oncology patients but may also

be used for patients diagnosed with diabetes, cardiovascular disease, or other health problems in order to avoid complications that may arise due to lack of proper nutrition. A potential implication to positive social change is having patients who are healthier and are able to engage in community activities when food is secured and improve their quality of life.

Summary

Addressing food insecurity is not only important for oncology patients but should be utilized in every health care setting. Food insecurity is one area of social determinants of health and may be impacted negatively when not addressed. This project will provide an educational intervention for nurses to (a) create awareness on the importance of assessing for food insecurity in oncology patients and (b) provide resources for referral. Data were gathered through pre- and post-tests to measure whether nurses improved their knowledge on how to assess for food insecurity in oncology patients and where to find resources to address the problem. In the next section, I will discuss the various concepts, models, and theories used in this project; the relevance of food insecurity to nursing practice; the local background and context; the role of the DNP student; and the role of the project team.

Section 2: Background and Context

Assessing food insecurity among oncology patients has not been the practice in the oncology clinic, but inadequate nutrition may affect treatment regimen adherence and contribute to poor health outcomes. Oncology patients who are economically and socially insecure may also be food insecure and may not follow through with medical care when they are food insecure (Gany et al., 2015). A patient with cancer needs a balanced diet to help build immunity, and food insecurity is considered one of the factors associated with cancer deaths (Davio, 2018; National Cancer Institute, 2018). In a recent study on factors that could cause cancer deaths, food insecurity had the highest percentage at 19.1% when compared with smoking at 12.7%, lack of access to high quality care 17.9% and physical inactivity 12.2%, (O'Connor et al., 2018). Though there have been interventions such as food banks, they have not been able to improve overall food insecurity due to their limited capacity to provide nutrient dense foods (Bazerghi et al., 2016).

Healthy People 2030 have been focusing their attention on helping individuals eat a healthy diet or get the recommended nutrition such as fruits, vegetables, and whole grains in order to reduce the risks of getting chronic diseases and also to improve their overall health status (Healthy People, 2021). Additionally, their goal addresses five social determinants of health: economic stability, education access and quality, health care access and quality, neighborhood and built environment, and social and community context (Healthy People, 2021). For example, they aim to address economic stability by helping people to make an income that meets their health needs (Healthy People, 2021).

The overall goal is to maintain consistency with national programs, regulations, policies, or laws (Healthy People, 2021).

This staff education project was created to make food insecurity assessment part of nursing assessment for oncology patients as well as providing training on how to use an assessment tool for identifying food insecurity, thereby promoting quality healthcare, continuity of care and improved health outcomes. The HFIAS, which has been tested for validity and reliability, was used to train nursing staff in assessing for food insecurity among oncology patients as other instruments have lacked a few aspects of reliability and validity (Marques et al., 2015). The practice focused question for this project is “Will educating the nursing staff on assessing for food insecurity lead to improved assessment and referral for oncology patients?”

In this section, I will discuss the concepts, models, and theory relating to food insecurity and the relevance to nursing practice of assessing food insecurity in oncology patients. I will also look at the local context and what the state and federal government are doing to close the gap in access to food and the role of the DNP student in creating awareness of food insecurity among oncology patients.

Concepts, Models, and Theories

Maslow’s hierarchy of needs is a theory formulated by a psychologist who suggested that human needs are diverse (Maslow, 1943). The five-tier model can be divided into physiologic needs (food, water, warmth, and rest), safety needs (security, safety), belongingness and love need (intimate relationships, friends), esteem needs (prestige and feeling of accomplishment), and self-actualization (see Figure 1; Mcleod,

2020). The physiological and safety needs are classified as basic needs, whereas the belongingness and love and esteem needs are classified as psychological needs and self-actualization as self-fulfillment needs. Maslow explained that lower-level needs are known as deficit needs while the higher-level needs are known as growth needs. He went further to say that individuals have to satisfy lower-level needs before focusing on higher needs. When these needs are met, then human behavior is directed toward satisfying the next need in the hierarchy (McLeod, 2020).

Figure 1

Maslow's Hierarchy



Note. From “How SDoH Align with Maslow’s Hierarchy of Needs,” by A. Rajan, 2019 (<https://carrothealth.com/importance-of-sdoh/>). In the public domain.

Food insecurity is considered as a part of basic biological needs for human survival. According to Maslow’s theory, when this need is unmet, humans tend not to function optimally (McLeod, 2020). When oncology patients are food insecure, adhering

to medical treatment may be difficult. For example, an individual with cancer, hungry and homeless will first seek to satisfy physiological needs such as food and shelter before seeking medical treatment which is part of safety needs. When these physiological needs are not met, moving to a higher hierarchy of need such as safety needs will be difficult. Food insecurity has been associated with fatigue, depression, malnutrition, and weakened resistance to infection, which are also adverse effects of cancer (Simmons et al., 2006).

Henderson's Nursing Theory

Virginia Henderson, a nurse and a theorist, formulated the nursing need theory in 1964, and it was first published in 1966. The theory focused on the assistance provided by nurses to patients especially helping them with their basic needs toward recovery (Henderson, 1966). Virginia Henderson's nursing need theory helps to understand that these patients have basic needs that are pertinent to health such as adequate food, shelter, and transportation (Petiprin, 2016). Henderson's theory describes these needs as part of independence and essential to effective discharge of patients to a healthier state. These basic needs of the individual, the environment the individual lives in, their health and the ability to function independently, and basic concepts of nursing are well grounded in Henderson's nursing need theory (Independence, 2020).

Maslow's hierarchy of needs is related with Virginia Henderson's nursing need theory because both theories are based on basic human needs that must be satisfied before the individual can move up to another need or attain independence. Both theories discuss how meeting basic needs such as food, and shelter can lead to optimal health. But Virginia Henderson divided her nursing need theory into fourteen components and named

the first nine physiologic needs, the 10th and 14th are psychological needs, the 11th is spiritual and moral, and the 12th and 13th are related to socials and occupation (Ahtisham & Jacoline, 2015). Assessing food insecurity as a social need should be a part of nursing practice as basic human needs are the central focus of nursing practice (Petiprin, 2016).

Definition of Terms

Adverse health effect: These are harmful effects on the health of an individual which presents as abnormalities, lowers quality of life, causes illness, and may lead to death (International Journal of Public Health and Safety, 2021).

Assessment: A method of determining the relevance, impact, or effectiveness of some interventions in order to understand achievements or the lack thereof (World Health Organization, 2020).

Food insecurity: Food insecurity is the unavailability or inability to get safe and nutritious foods for the well-being of individuals in a socially acceptable manner (Coleman-Jensen et al., 2020).

Household food insecurity access scale (HFIAS): This is a short questionnaire used to assess the psychological and behavioral presentation of individuals who lack access to quality food due to lack of resources (International Dietary Data Expansion Project, 2018).

Malnutrition: This refers to deficiencies, excesses, and imbalances in an individual's dietary intake (World Health Organization, 2020).

Oncology: This is the study and treatment of cancer and tumors, which can be divided into three major fields: medical, surgical, and radiation (Cancer.Net, 2018).

Medical deals with the use of chemotherapy such as immunotherapy or targeted therapy, surgical deals with removal of tumors, and radiation involves the use of radiation therapy.

Relevance to Nursing Practice

Food insecurity is a serious challenge among cancer patients and may lead to clinical and economic consequences which may alter survival rates (Gany et al., 2014). Studies have shown that food insecurity in cancer patients' increases length of stay, poor clinical outcomes, and increased cost as well as numerous health complications (Krishanasamy, Yoong, Chan, Chong, & Chinna, 2016). Providing a means to alleviate such problems will go a long way in creating a positive impact in the community. A more in-depth assessment of nutritional status and food availability will help nurses to identify complex clinical situations, assess health issues as well as provide solutions to these problems in our fast-paced health environment (Lee, Lee, Bae, & Seo, 2016).

Assessing social needs should be a part of nursing practice (Petiprin, 2016). Solving this health issue of food insecurity requires involvement that will include the nurse practitioners and doctors (Duffy et al., 2019). Nurses should be able to assess relevant issues with patients' visits, correlate data, and recognize inconsistencies, if any and these should aid in decision-making and promote better health outcomes.

Food insecurity screening has been going on for a long time in America, mainly done by social workers and case managers in various health centers. The nurse manager at the target clinic reports that although social workers are available to assess for food insecurity, the assessment of patients by social workers is inconsistent and requires a referral from the nurse or physician (Personal communication, June 2020). Though there

has been some food insecurity assessment at the practice site, there is no set criteria on who to assess or when. Food insecurity has been a challenge for health care centers and it can only begin to be resolved if food insecure individuals admit they are food insecure and the stakeholders such as the nurses and other providers assess and are able to intervene by providing available resources and referrals (Grenier & Wynn, 2018).

How Food Insecurity Is Currently Assessed

Presently, at the oncology clinic at the target site, nurses assess for food insecurity based on when they feel there is need for it, with no standardized measuring protocol in place for assessing patients for food insecurity. According to the unit manager, there is no set criteria for assessing food insecurity and it has not been a part of routine assessment which makes it possible to miss out on many oncology patients who are food insecure (Personal communication, June 2020). In my experience, I have noticed that sometimes we as nurses, are biased towards patients, assuming that a well-dressed individual may not have problems with caring for themselves or may assume that a patient looking unkempt or different than oneself is one with many problems, thereby basing our assessment on personal judgement and biases rather than the actual situation. As a result, many food insecure patients have been missed simply because providers assume the patients are food secure.

Nurses need to be encouraged to practice a holistic health assessment which includes assessing these patients for emotional, mental and spiritual wellbeing instead of just focusing on physical health (Lamar University, 2018). Assessing for food insecurity will help improve continuity of care and health outcomes among oncology patients who

are food insecure. A holistic assessment will also allow nurses gain an insight into the type of oncology patients they are taking care of and their background.

How Food Insecurity Should be Screened

The household food insecurity access scale (HFIAS) will be used as an assessment tool to help enhance nursing assessment and will be a part of the staff education project. The HFIAS tool was developed by U.S. Agency for International Development for funded Food and Nutrition Technical Assistance II Project in collaboration with Tufts and Cornell Universities and other partners between 2001 and 2006 (International Dietary Data Expansion Project, 2018). The tool consists of a 9-item questionnaire constructed to capture behavioral and psychological issues inherent in insecure food access as regards the quantity and quality of food consumed due to limited resources. It is mainly used for measuring nutritional status. The HFIAS tool is known to have a sensitivity score of 87.9% and specificity score of 56.2% with area under the curve at 95% CI thereby making it very reliable and valid with a high Cronbach's Alpha of 0.926 (Hussein, Ahmed, & Muhammed, 2018). The tool can be viewed in Appendix C.

The HFIAS tool differentiates food insecure individuals from food secure individuals. Its validity has been tested through application in many countries and across diverse cultural groups (Gebreyesus, Lunde, Marian, Woldehanna, & Lindtjorn, 2015). It measures the prevalence of food insecurity and any changes occurring within the population over time (U.S. Agency for International Development, 2007). This tool may help provide a comprehensive assessment of these oncology patients and would make it easy to identify food insecure oncology patients and provide feedback, especially for

those who are not able to discuss their social statuses in a face-to-face meeting but are able to open up when given questions on paper.

Local Background and Context

This community in northern California has 7 counties. It has a total population of about 284,616 which is a combination of races and is said to have about 12.2% of individuals living beneath the poverty level (Solano Community Health Needs Assessment, 2019). The population includes a low-income, underrepresented, underserved and highly vulnerable population in the region. Food insecurity in this community is about 15.2% of the population. Only 9.7% of this population is receiving supplementary nutrition assistance program (SNAP) (Solano County Community Health Assessment Summary Report, 2016).

The Modified Retail Food Environment Index, an instrument that assesses a geographic area for access to healthy foods and its availability, recorded lower scores for the target community than the rest of the state. The access to healthy foods and its availability have been noted to be very poor in this community through the Modified Retail Food Environment Index rates presented in the community assessment done in 2016 which means that it is difficult for food insecure individuals to get access to healthy foods due to unavailability. The Modified Retail Food Environment Index for this community was 74.51 per 100,000 and grocery stores were also not within reach of these individuals who are food insecure (Solano County Community Health Assessment, 2016). This shows poor or no access to healthy foods or nearby grocery stores in the

community, thereby making accessibility to healthy foods for individuals in this community very difficult.

Cancer mortality rate is about 18.8% in this community (Solano Health Assessment Summary, 2016). Looking at the statistics above, and also noting many homeless and food insecure individuals due to the socio-economic status of individuals living around this area, I became interested in working on the problem. There is a need to assess individuals from this community for food insecurity and to provide avenues where nutritious foods can be accessed.

The clinical site is a neighborhood community hospital with 248 licensed beds and many clinics serving the community (Office of Statewide Health Planning and Development, 2018). The project will be carried out from the practice observed at the oncology clinic at the target site which offers medical treatment to about 100 - 120 patients on a daily basis in the outpatient oncology clinic as reported by the unit manager (Personal Communication, June 2020). The target hospital's mission is to provide affordable care and improve the health of the members of the community they serve and their vision is to be a leader in total health through making lives better, improving quality of care, providing safety, privacy and preventing fraud.

The hospital helps the community on a daily basis through donating food to food banks and churches who provide free food for the homeless and needy individuals and by so doing, are helping in bridging the food insecurity problem in the community. The hospital, through various programs, has also offered counseling and education on gaps in patient's diet quality. Hospital staff must realize the need to address food insecurity as a

part of their routine patient assessment in order to support the population's health (Stenmark et al., 2018), improve quality of care and encourage adherence to treatment regimen when these patients' become food secured.

Role of the DNP Student

My professional connection to this this project is that I am a student assigned to this practicum site. I am carrying out my project as a student and have no supervisory power over the oncology unit staff at this target site. I am also employed as a staff in another site and city, in the medical surgical unit of the same target hospital. I maintain a student role in carrying out my project and will be collecting, assessing, reviewing and analyzing the evidence and maintaining a cordial relationship with staff and management at the target site. The project team will assist me to review evidence, review teaching plan and the pre/posttest in order to have a successful educational project. I am carrying out this project in order to create awareness on the need to assess oncology patents for food insecurity in order to have a holistic picture of the patient and their social status in order to determine where help is needed.

In my practicum site, I observed the need for assessing our patients for food insecurity and the lack of appropriate tools to use in assessing FI. Introducing the HFIAS tool will make assessment easier as some patients may shy away from answering such questions in a face-to-face meeting but can easily write down their situation on paper. I was motivated to do this project when I observed how nurses can benefit from assessing their patients and how adding this assessment can lead to an improvement in continuity of care.

I was personally motivated to develop this project when I had an encounter with a 17-year-old male who was recently diagnosed with testicular cancer and was having difficulty leaving the hospital for fear of not having a place to stay, let alone food to eat. When I listened to the patient, I noticed that this individual was homeless, recently lost his job and did not have enough resources to fend for himself. He was meant to be on 5 cycles, 21-day interval of chemotherapy regimen, but would not be able to continue with his chemotherapy if he is hungry and homeless. If I had assessed this individual for food insecurity prior to discharge, I would have been able to know the whole situation of the patient prior to discharge and arranged to find him a place to stay and provide resources on how and where to get free food. I am glad I was still able to delay his discharge, provide the necessary resources he needed and this made it possible for him to return for his next cycle of chemotherapy.

Some potential biases I have is that assessing food insecurity should not be limited to nurses, but also other allied healthcare workers. Also, the food insecurity assessment should not only be used for cancer patients but could also apply to other diseases and health issues such as diabetes, cardiovascular diseases, pregnant women, elderly people and disabled individuals. Food insecurity is not just a problem for oncology patients but can be devastating for individuals who are already immunocompromised (Gany et al., 2014).

In order to continue with the project, there was need to seek approval and support from the management team from the local facility to enable me conduct the project in their oncology clinic. The application was filled out and the necessary paperwork

attached to the form and sent out for approval. The Research Determination Committee for the target hospital reviewed my project and granted approval for this project to continue as it is not research involving human subjects (see Appendix E).

Role of the Project Team

The project team consists of a 3-member committee headed by the research coordinator at the target hospital, and includes a manager and a staff nurse at the target site. This three-member committee will review the evidence, the teaching plan and the pre/posttest for content validity. They will then make recommendations as well as help coordinate arrangements in executing the educational project, giving out the pre and post survey questionnaires and also collecting the pre/post survey questions already filled out by the staff in the oncology unit of the target hospital.

Summary

Food insecurity assessment is vital for oncology patients. Failing to do the assessment may result in break in treatment protocol and may lead to poor health outcome. There is a need for every nurse to bridge the gap in practice by addressing food insecurity through assessing patients and providing referrals for affordable food resources. This should impact positively and will increase continuity of care, improve the quality of care given and also improve health outcome. In the next section, I will be discussing about the participants, their relevance to the project, methods of data collection, analysis of data, systemic reviews on food insecurity, and sources of evidence.

Section 3: Collection and Analysis of Evidence

This doctoral capstone is a nursing staff education project that will enhance the knowledge of nurses in assessing oncology patients for food insecurity. The collection of data took place in an oncology clinic located within a mid-size community hospital in an area of poverty and diversity. Collection and analysis of evidence focused on the staff education program, and data collection occurred through pre- and post-tests. Data were analyzed to evaluate the effectiveness of the educational session.

In this section, I will discuss the practice-focused question, the participants involved, and the ethical considerations. I will also focus on the different sources of evidence that support the need for food insecurity assessment. I will provide the analysis and synthesis of data using various statistical procedures and introduce the use of the HFIAS tool for assessing food insecurity. The step-by-step procedure for the educational presentation to the nurses and other clinical staff will also be explained.

Practice-Focused Question

The gap in practice is the lack of assessment for food insecurity in oncology patients by nurses in their routine assessment. The practice focused question is “Will educating the nursing staff on assessing for food insecurity lead to improved nutritional assessment and referral for oncology patients?” This doctoral capstone is a nursing staff education project that will enhance knowledge of nurses in assessing oncology patients for food insecurity, creating awareness to help bridge the gap in practice by making assessing for food insecurity a part of assessment. This can promote a healthier state of life, promote continuity of care, and better patient outcomes.

Definition of Terms

Adverse health effect: These are harmful effects on the health of an individual that present as abnormalities, lower quality of life, cause illness, and may lead to death (International Journal of Public Health and Safety, 2021).

Food insecurity: Food insecurity is the unavailability or inability to get safe and nutritious foods for the well-being of individuals in a socially acceptable manner (Coleman-Jensen et al., 2020).

Household food insecurity access scale (HFIAS): This is a short questionnaire used to assess the psychological and behavioral presentation of individuals who lack access to quality food due to lack of resources (International Dietary Data Expansion Project, 2018).

Malnutrition: This refers to deficiencies, excesses, and imbalances in an individual's dietary intake (World Health Organization, 2020).

Oncology: The study and treatment of cancer and tumors, which involves chemotherapy, removal of tumors, and radiation therapy (Cancer.Net, 2018).

Sources of Evidence

The initial sources of evidence for this project were mainly systematic reviews published in peer-reviewed journals within the last 5 years from EBSCO, OVID Medline, ProQuest, CINAHL, USDA, UpToDate, Centers for Disease Prevention and Control, California Department of Food and Agriculture, Medline and Cochrane database in order to ascertain high quality primary research on food insecurity. There was a three-member panel of the hospital research committee to review evidence on subject area, and they

have experience in research and publication on health care related subjects. The keywords for the search included *food insecurity, cancer, oncology clinicians, food insecurity access scale, adverse health effects, and malnutrition*. The evidence-based knowledge from the literature served as the foundation to enhance assessment on food insecurity.

This project also involved a pretest, which assessed nurses' current knowledge of assessment for food insecurity, and an educational training to create the awareness on food insecurity assessment with the HFIAS tool as a means for easy assessment. A posttest assessed whether the nurses understood the importance of incorporating food insecurity assessment as part of routine assessment. The pre/posttests were validated using a quantitative approach to content validity (Lawshe, 1975), and the HFIAS is already tested for validity and reliability.

Evidence Generated for the Doctoral Project

Participants

The project was open to nurses who work with patients who have cancer and are receiving treatment by local facility. There were seven nurses, two nurse practitioners, and the nurse manager. Participation was voluntary and no patient participation was included in this project. The nurses will work in collaboration and help in incorporating food insecurity assessment as routine assessment for improved outcome.

Procedure

I met with the management team at the target facility prior to the educational session in order to plan and review the evidence, the teaching plan, the pre/posttest, and

the results of the content validity review. After the meeting, the teaching plan and pre/posttest were revised based on their recommendations. Next, the HFIAS tool was introduced to train the nursing staff in assessing food insecurity among oncology patients. This HFIAS tool has been tested for reliability and validity and has a sensitivity score of 87.9% and specificity score of 56.2% with area under the curve at 95% CI. These scores make it reliable and valid with a Cronbach's Alpha of 0.926 (Hussein et al., 2018). The reliability and validity of this tool were checked online in many foods assessment projects and has proved to be very helpful in achieving results in the various studies. The HFIAS was applied in a cohort analysis where the seasonality of household food insecurity was measured among the villagers in rural Ethiopia (Kabalo et al., 2019). Additionally, in Sharpeville, South Africa, the HFIAS was used when analyzing the prevalence of food insecurity among 146 elders attending a care center to determine sociodemographic factors associated with food and nutrition insecurity (Oldewage-Theron & Egal, 2021).

I sought approval from the Walden University Institutional Review Board (IRB), and once approved, I met with the DNP project team before carrying out an educational session through a 1-hour Zoom class due to the recent corona virus pandemic requiring social distancing. Through the development of the education project and sessions, I

1. Assessed for food availability/accessibility in the project site community and created a list of referrals for nurses to use.
2. Prepared a referral sheet that tells nurses what, when, how, and where to refer patients to available free or sliding scale nutritious food resources in the

community. This sheet shows various places where patients can get free food or groceries and on what days and time such free food or groceries will be available in the community. This sheet will be given out at the educational session.

3. Developed a pretest after approval from management related to nurses' knowledge of food insecurity assessment for oncology patients and knowledge of local resources.
4. Conducted posttest with nurses to assess their knowledge of assessment of food insecurity for oncology patients and knowledge of local resources after the training. (see Appendix B for teaching plan)

The educational session taught the staff how to use the HFIAS tool.

Protections

Approval was granted to conduct project by local facility (see Appendix E). A waiver from the regional IRB from the local organization deemed that this is not research with human subjects. Participants acknowledged that they are participating by choice. Their pre- and post-tests were collected anonymously through Google Forms with no identifying personal information. The participants were free to leave at any time. The information gathered will be stored in a password-protected electronic system for analysis and will be kept for at least 3 years.

Analysis and Synthesis

A pre- and post-test were given before and after the educational session through Google Forms. Descriptive statistics such as frequencies, percentages, mean, median, and mode were used to analyze data from these tests. I used a password-protected system to

analyze the data and put the data in an Excel spreadsheet. All data gathered were anonymous, and the answers were coded in a Google Form using color coded identifiers that were easy for analysis.

Summary

In this section, I discussed the sources of evidence, collection methods and analysis of evidence, the number and category of participants, consent, and ethical considerations for participants and the HFIAS tool and statistical analyses. I also discussed how data were collected and protected and how it will be kept secured. The next session will be on the findings after the educational session for participants and collation of the pre/post questionnaires. Additionally, the contributions of the doctoral team will be discussed, the strengths and limitations encountered with the project, and statistical representation of the findings. Recommendations will be made based on the results generated.

Section 4: Findings and Recommendations

Food insecurity has been noted as a challenge among cancer patients and may lead to clinical and economic consequences that may alter survival rates (Gany et al., 2014; Krishanasamy et al., 2016). While assessing the assessment routine in an oncology clinic in a mid-size hospital located in an area of poverty and diversity, I noted a clinical gap in practice regarding nurses assessing their patients for food insecurity but mainly base their assessment on the medical aspect only. Assessing social needs should be a part of nursing practice (Petiprin, 2016). But at the practice site I realized that there is not much awareness of food insecurity, and the oncology nurses do not assess for food insecurity among their patients.

As a result of the gap in practice, I implemented a nursing staff education project to educate the nurses on how to assess their patients for food insecurity using the HFIAS as a tool. The purpose of creating an educational project was to inform nurses on making food insecurity assessment a part of assessment for oncology patients. A referral sheet was made comprising of areas around the community where free food and groceries can be found on different days and times to enable food insecure individuals procure food. Assessment and referral of those in need will allow nurses to promote social change.

To accomplish this educational project, I gathered evidence from peer-reviewed journals within the last 5 years on food insecurity and assessment in order to show the nurses the impact of not assessing food insecurity in oncology patients. Some keywords used were *food insecurity*, *cancer*, *oncology clinicians*, *food insecurity access scale*, *adverse health effects*, *malnutrition*, and *assessment*. The project was presented to

oncology nurses at the target facility through the target site team's network. The nurses filled out the pretest that was uploaded through Survey Monkey to their site prior to my presentation. After the presentation, the posttest was also uploaded using Survey Monkey for the nurses to fill out. At the end of the presentation, 20 responses were received for the pretest, and 16 responses for posttest.

The results were analyzed in order to show their current practice for assessing for food insecurity (pretest) and what they have learned after the educational presentation on how to assess food insecurity with the use of the HFIAS tool (posttest). There was no way of doing a paired test analysis as there was no way of decoding who answered the pretest or posttest. A question-by-question analysis was used to analyze the data from the presentation as a result of the setup of the teams' network at the target site. The pretest/posttest had 12 questions each, and the answers were "yes" or "no" answers.

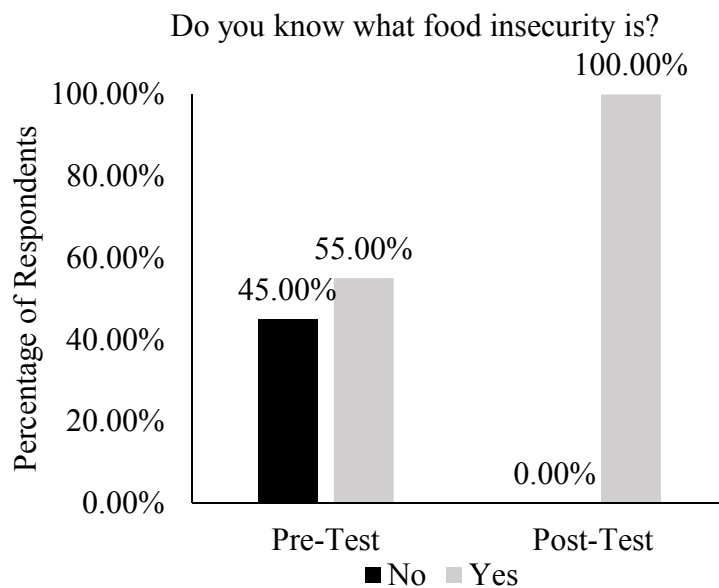
A table was formed from the responses and an Excel spreadsheet was done to collate the result of the pretest and posttest. Descriptive statistics such as frequency, percentages, chi-square, and z test was used to analyze data collated. An SPSS analysis was done, and the results are in the following tables and graphs.

Table 1*Simple Frequency Table for Pre- and Post-Test Responses*

Variables	Pre-Test Responses		Post-Test Responses	
	Yes <i>f</i> (%)	No <i>f</i> (%)	Yes <i>f</i> (%)	No <i>f</i> (%)
Do you know what food insecurity is?	11 (55.00%)	9 (45.00%)	16 (100%)	0 (0%)
Do you address food insecurity among oncology patients?	6 (30.00%)	14 (70.00%)	9 (56.25%)	7 (43.75%)
As a nurse, do you think food insecurity should be part of patient health assessment?	16 (80.00%)	4 (20.00%)	16 (100%)	0 (0%)
Do you assess oncology patients for food insecurity with each visit to ascertain their status?	4 (20.00%)	16 (80.00%)	8 (50.00%)	8 (50.00%)
Are there any barriers for assessing food insecurity among oncology patients during their oncology health visits?	8 (40.00%)	12 (60.00%)	11 (68.75%)	5 (31.25%)
Do you have a tool/criterion to use in assessing for food insecurity?	1 (5.00%)	19 (95.00%)	9 (56.25%)	7 (43.75%)
Do you think assessing patients for food insecurity should be included at every visit or at regular intervals?	16 (80.00%)	4 (20.00%)	16 (100%)	0 (0%)
Do you have available resources for referral to secure foods easily in the community?	6 (30.00%)	14 (70.00%)	14 (87.50%)	2 (12.50%)
Do you know that food insecurity is one of the social determinants of health?	8 (40.00%)	12 (60.00%)	14 (87.50%)	2 (12.50%)
Do you think food insecurity poses a health risk for oncology patients?	15 (75.00%)	5 (25.00%)	16 (100%)	0 (0%)
As a nurse, do you plan to become a food advocate for your patients who are food insecure?	14 (73.68%)	5 (26.32%)	16 (100%)	0 (0%)
Would you encourage your patients to speak up if having any issues with social determinants of health such as food, shelter or clothing?	18 (90.00%)	2 (10.00%)	16 (100%)	0 (0%)

Figure 2

Pre- and Post-Test Responses for Question 1

**Figure 3**

Pre- and Post-Test Responses for Question 2

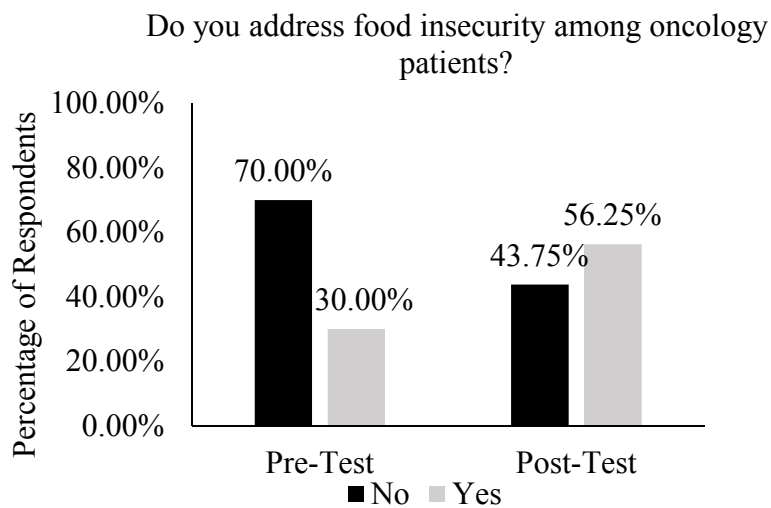


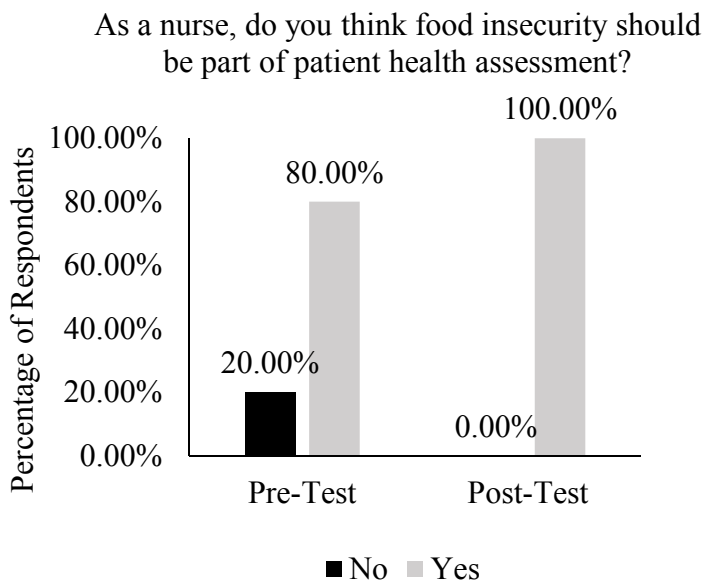
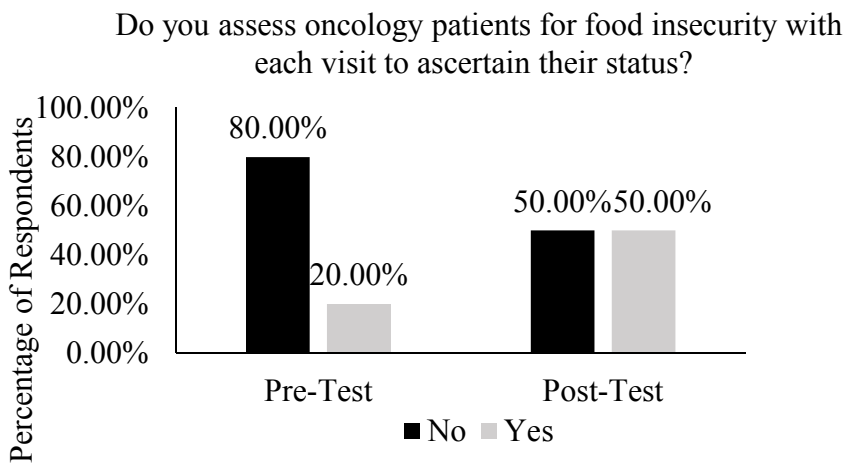
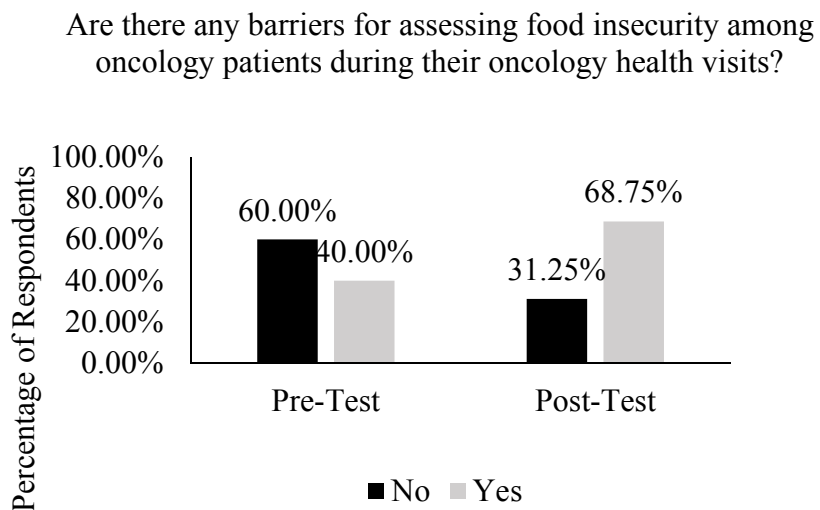
Figure 4*Pre- and Post-Test Responses for Question 3***Figure 5***Pre- and Post-Test Responses for Question 4*

Figure 6

Pre- and Post-Test Responses for Question 5

**Figure 7**

Pre- and Post-Test Responses for Question 6

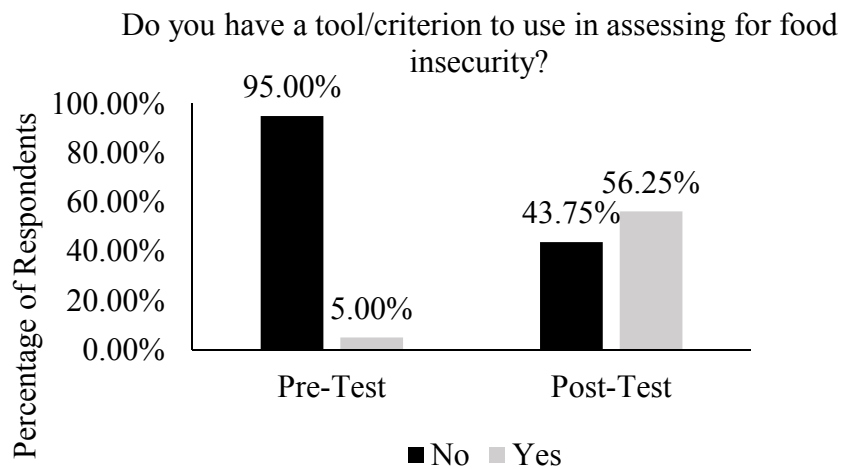
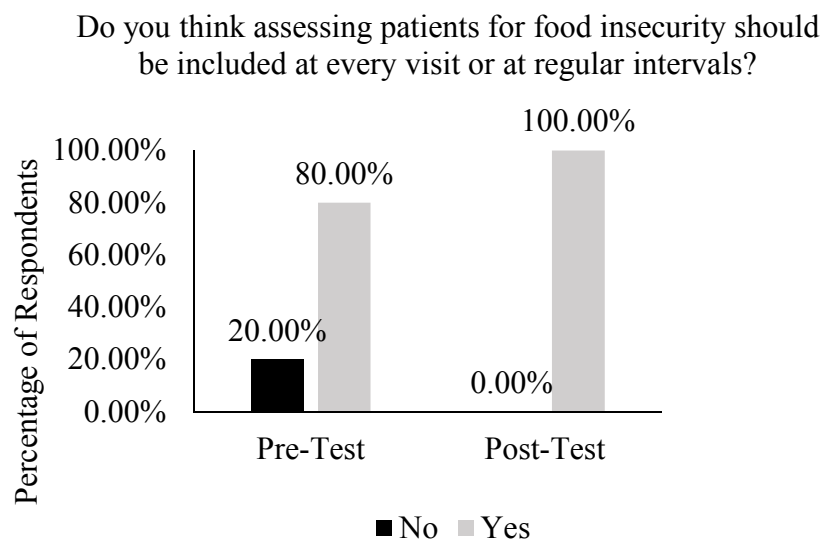


Figure 8

Pre- and Post-Test Responses for Question 7

**Figure 9**

Pre- and Post-Test Responses for Question 8

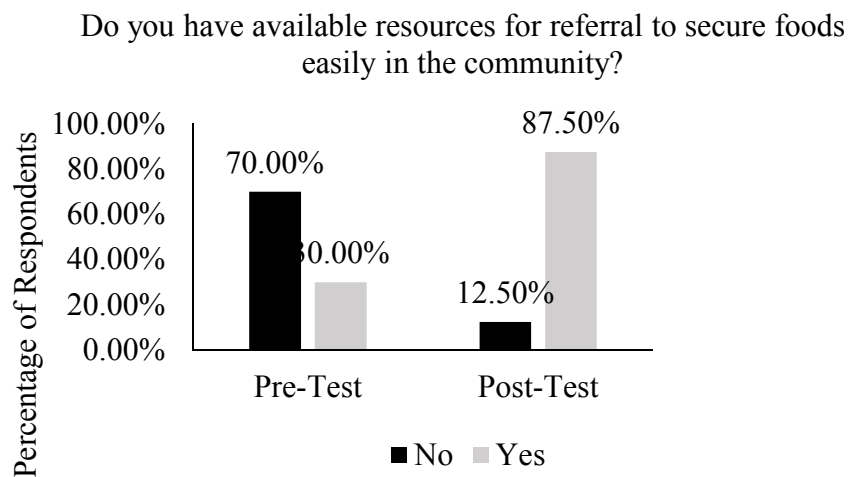
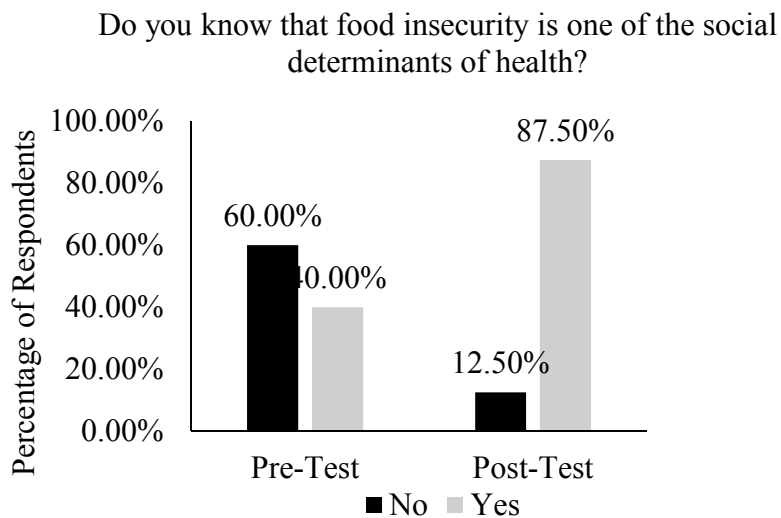


Figure 10

Pre- and Post-Test Responses for Question 9

**Figure 11**

Pre- and Post-Test Responses for Question 10

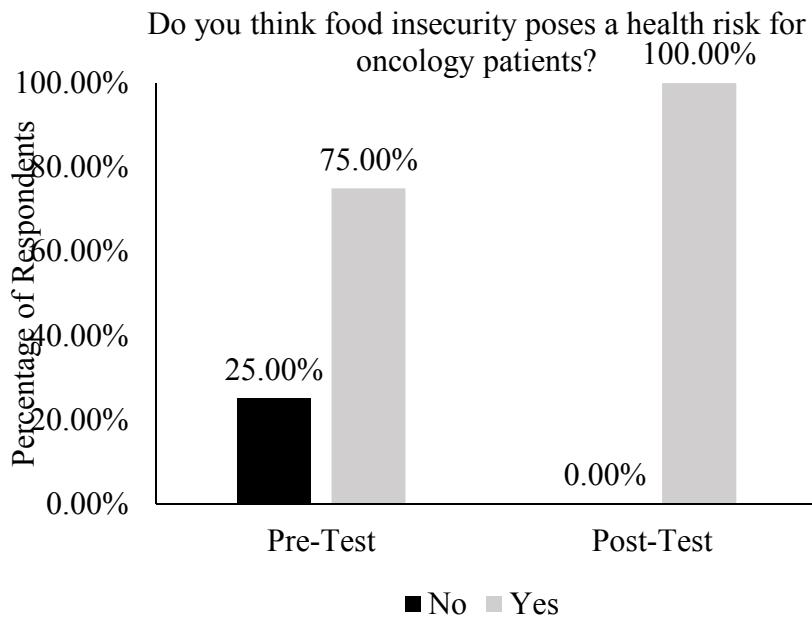
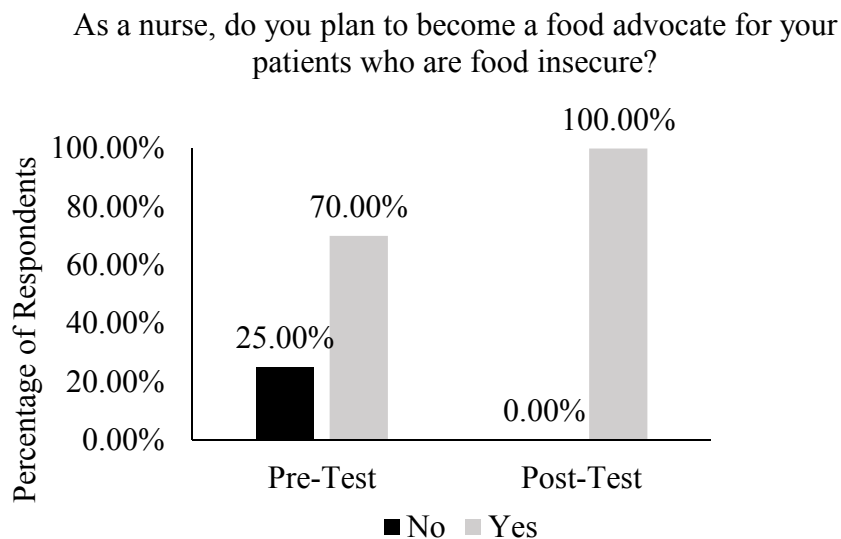


Figure 12

Pre- and Post-Test Responses for Question 11

**Figure 13**

Pre- and Post-Test Responses for Question 12

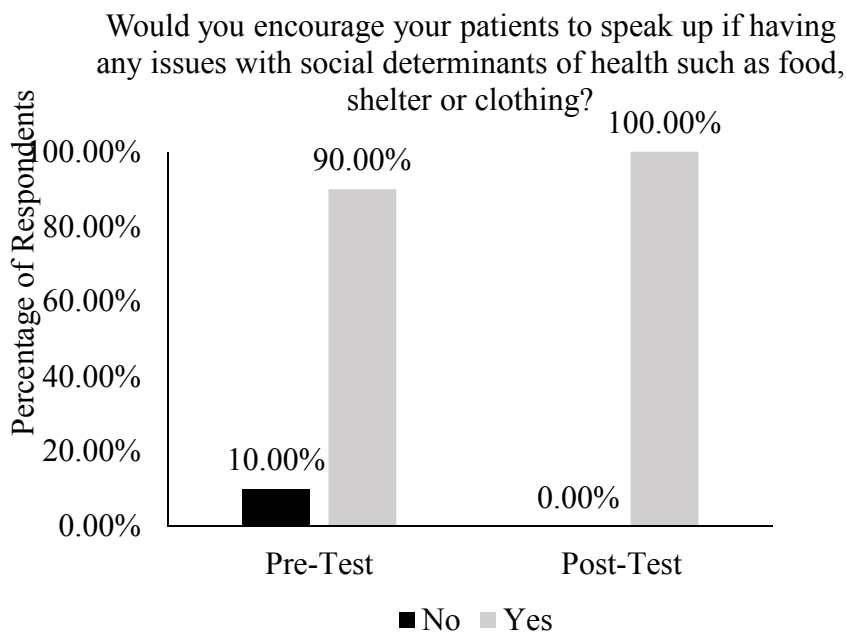


Table 2*Z Test for Two Independent Proportions*

Variable	Response	Counts		Chi-Square
		Pre-Test	Post-Test	
Do you know what food insecurity is?	Yes	11 ^b	16 ^b	9.60**
	No	9 ^a	0 ^a	
Do you address food insecurity among oncology patients?	Yes	6 ^a	9 ^a	2.52
	No	14 ^a	7 ^a	
As a nurse, do you think food insecurity should be part of patient health assessment?	Yes	16 ^a	16 ^a	3.60
	No	4 ^a	0 ^a	
Do you assess oncology patients for food insecurity with each visit to ascertain their status?	Yes	4 ^a	8 ^a	3.60
	No	16 ^a	8 ^a	
Are there any barriers for assessing food insecurity among oncology patients during their oncology health visits?	Yes	8 ^a	11 ^a	2.95
	No	12 ^a	5 ^a	
Do you have a tool/criterion to use in assessing for food insecurity?	Yes	1 ^a	9 ^a	11.63***
	No	19 ^b	7 ^b	
Do you think assessing patients for food insecurity should be included at every visit or at regular intervals?	Yes	16 ^a	16 ^a	3.60
	No	4 ^a	0 ^a	
Do you have available resources for referral to secure foods easily in the community?	Yes	6 ^a	14 ^a	11.90**
	No	14 ^b	2 ^b	
Do you know that food insecurity is one of the social determinants of health?	Yes	8 ^a	14 ^b	8.44**
	No	12 ^a	2 ^b	
Do you think food insecurity poses a health risk for oncology patients?	Yes	15 ^a	16 ^a	4.65*
	No	5 ^b	0 ^b	
As a nurse, do you plan to become a food advocate for your patients who are food insecure?	Yes	14 ^a	16 ^a	4.91**
	No	5 ^b	0 ^b	
Would you encourage your patients to speak up if having any issues with social determinants of health such as food, shelter or clothing?	Yes	18 ^a	16 ^a	1.69
	No	2 ^a	0 ^a	

Note. * $p < .05$; ** $p < .01$; *** $p < .001$; ^a or ^b denotes that the cells are **not** different from one another at a significant level ($p = .05$).

Findings and Implications

There were 20 participants who responded to the pretests and 16 participants who responded to the posttest after a 1-hour presentation on food insecurity. Table 1 showed a

simple frequency table showing the 12 variables (questions) and the responses in numbers and percentages for both the pretest and posttest for the 12 questions and figure 2 to 13 shows graphic representation of the 12 questions for both pretest and posttest responses in percentages and the 'No' and 'Yes' answers. Table 2 shows the chi square and z test analyses to show if the test showed a significant difference after the presentation or not. The overall effect from the tables and graphs showed an increase in knowledge from the pretest to the posttest.

In question 1, (Do you know what food insecurity is?), 11(55%) participants answered yes and 9(45%) participants answered no, which meant that only 55% knew what food insecurity is. In the posttest with the same question, the 16 (100%) nurses who participated answered yes meaning that knowledge was gained after the presentation. The analysis from the graph in figure 2 shows there is a significant difference between those who said yes and no based on pre/posttest, $\chi^2(1, 36) = 9.60, p = .002$. In the pretest, a significant difference is seen for those who said yes ($n = 11$) and those that said no ($n = 9$). At the posttest also, a significant difference is noted for those who said yes ($n = 16$) and those who said no ($n = 0$). This means the test was significant for an increase in knowledge.

In question 2 (Do you address food insecurity among oncology patients?), Out of the 20 participants in the pretest, 6(30%) answered yes and 14(70%) answered no which means that a greater percentage were not addressing food insecurity among their patients but out of the 16 participants in the posttest, 9 (56.25%) answered yes, and 7(43.75%) answered no which means that a greater percentage will now address food insecurity

among their patients after gaining knowledge from the presentation but the difference was not significant enough as we can see in the chi square and z test analyses. The analysis in figure 3 showed a difference but was not significant enough in the proportion of those who said yes and those who said no in the pre/posttest $\chi^2(1, 36) = 2.52, p = .112$. In other words, there was not much difference from the answers got prior to the presentation and post presentation.

Question 3(As a nurse, do you think food insecurity should be part of patient health assessment?), 16(80%) said yes and 4(20%) said no but after the educational presentation, the 16(100%) participants in the posttest all answered yes meaning that food insecurity assessment should be a part of the assessment for food insecurity for oncology patients. The analysis in figure 4 shows that there was an increase in knowledge because all those who said no now answered yes in the posttest but no significant difference when comparing the percentage of those who said yes (80%) in the pretest to those who said yes (100%) in the posttest. No difference based on pre/posttest $\chi^2(1, 36) = 3.60, p = .058$

In analyzing question 4 (Do you assess oncology patients for food insecurity with each visit to ascertain their status?), 4(20%) answered yes while 16(80%) answered no which means a greater percentage do not assess their patients for food insecurity. Out of the 16 participants for the posttest, 8(50%) answered yes and 8(50%) also answered no meaning that half the participants do assess their patients. Figure 5 shows no significant difference in the responses from the pre/posttest $\chi^2(1, 36) = 3.60, p = .058$. This may be as a result of limited time to ascertain if the oncology nurses applied what they learned in practice.

Question 5 (Are there any barriers for assessing food insecurity among oncology patients during their oncology health visits?). These barriers are in form of time constraints and lack of knowledge. 8(40%) answered yes to having barriers, while 12(60%) answered no to barriers but after the educational presentation, out of the 16 respondents to the posttest, 5(31.25%) said no, while 11(68.75%) agreed there were barriers that prevented them from assessing patients such as not having enough knowledge of what food insecurity is all about and time available for assessing these patients. In figure 6, the graph shows some difference between those who responded yes and no based on pre/posttest but the analyses from table 2 does not show significant difference from the yes and no on the pre/posttest $\chi^2(1, 36) = 2.95, p = .086$. This may be also due to the limitations in time in applying the project.

In question 6 (Do you have a tool/criterion to use in assessing for food insecurity?), out of the 20 participants, only 1(5%) individual answered yes while 19(95%) answered no as the clinic did not have any instrument in use. During the presentation, the HFIAS tool which has been validated and used by many organizations was introduced and the participants given copies that could be used with their patients in order to help ease the assessment and for easy evaluation of who was food insecure. After the presentation, out of the 16 participants who responded to the posttests, 9(56.25%) answered yes to having a tool to use while 7(43.75%) said no. A greater percentage acknowledge the HFIAS tool introduced which meant a positive effect. In the graph in figure 7, a significant difference is seen in the responses from the yes and no on the pre/posttest and the analysis shows the same result $\chi^2(1, 36) = 11.63, p = .001$. A

significant difference between the yes ($n= 1$) and the no ($n= 19$) in the pretest and the yes ($n= 9$) and no ($n= 7$) in the post test. This means the intervention to provide the tool necessary for patient assessment was positive.

In question 7(Do you think assessing patients for food insecurity should be included at every visit or at regular intervals?), out of 20 participants, 16(80%) answered yes and 4(20%) answered no to including food insecurity as part of assessment in the pretest but after the presentation, 16(100%) out of the 16 participants in the posttest acknowledged that assessing food insecurity should be a part of the assessment for oncology patients at every visit. This is important as life situations change and so assessing for food insecurity should not only be at certain times but at every visit. In the graph in figure 8, some respondents (20%) believed that food insecurity should not be assessed at every visit as evidenced in the graph but after the intervention, every respondent (100%) agreed that there is need to assess for food insecurity at every visit. In analyzing the data using chi square and z test for the pre/posttest, $\chi^2(1, 36) = 3.60, p= .058$. Table 2 showed no significant difference between the yes (80%) and the yes (100%) posttest. The difference of (20%) was not significant enough post intervention.

Question 8 (Do you have available resources for referral to secure foods easily in the community?) was a way to check if there were available resources the patients who are food insecure could use as a reference point to solve their problem, and out of 20 participants, 6(30%) said yes and 14(70%) said no to having available resources. During the educational intervention, I introduced a flier which I created containing about 15 addresses where free food and groceries can be got at different time and days around the

community. These fliers were left for the nurses in the clinic to distribute and use as a point for referral should they get oncology patients who are food insecure. After the intervention, out of 16 respondents for the posttest, 14(87.50%) answered yes while 2(12.50%) answered no. This shows a greater percentage are now aware of the resources available at their disposal to help food insecure oncology patients. In assessing for available resources, the graph in figure 9 shows not many respondents attested to having any resources they could rely on for their assessment but during the intervention, a flier showing a compilation of resources around the community was given out and this has helped equip the nurses for the much-needed referral. Hence the significant change in the responses post intervention. The analysis from table 2 showed a significant difference in the proportion of respondents based on the pre/posttest $\chi^2(1, 36) = 11.90, p = .001$. A significant difference between the yes ($n = 6$) and no ($n = 14$) at the pretest, and the yes ($n = 14$) and no ($n = 2$) at the posttest.

Question 9 (Do you know that food insecurity is one of the social determinants of health?), was assessing the knowledge of the nurses to know if they knew that food insecurity was one of the social determinants of health. Out of 20 participants, 8(40%) knew that food insecurity was part of the social determinants of health while 12(60%) did not have that knowledge. After the intervention, out of the 16 participants in the posttests, 14(87.50%) acknowledged the social problem which was a part of the social determinants of health while only 2(12.50%) denied the knowledge. This greater percentage in the posttest showed an increase in knowledge occurred with the intervention. In the assessment in figure 10, many respondents were not aware that food insecurity was part

of the social determinants of health. In analyzing the data, table 2 showed a significant difference in the respondents who said yes and no in the pre/posttest $\chi^2(1, 36) = 8.44, p = .004$. A significant difference exists between the yes ($n = 8$) and the no ($n = 12$) pretest and the yes ($n = 14$) and the no ($n = 2$) posttest.

In question 10, (Do you think food insecurity poses a health risk for oncology patients?), out of 20 participants, 15(75%) agreed while 5(25%) did not agree that food insecurity poses a health risk but in the posttest after the educational intervention, out of the 16 respondents to the posttest, all 16(100%) agreed that food insecurity poses a health risk and a big challenge among oncology patients. The respondents in figure 11 responded favorable post intervention because they now understood that not assessing patients for food insecurity is a big health risk and a dilemma the health care system have been dealing with. The graph in figure 11 shows all respondents (100%) agree that food insecurity poses a health risk. The analysis in table 2 shows a significant difference $\chi^2(1, 36) = 4.65, p = .031$ between pre/posttest and between the yes ($n = 15$) and no ($n = 5$) pretests and the yes ($n = 16$) and no ($n = 0$) posttest.

Question 11(As a nurse, do you plan to become a food advocate for your patients who are food insecure?) talks about advocating for our patients to make sure that food insecure patients get the help they need. Out of the 20 participants, 14(73.68%) answered yes to becoming a food advocate, 5(26.32%) said no and 1 individual did not provide answer to this question. After the educational intervention, all the 16(100%) respondents answered yes to becoming a food advocate for their patients. This shows a positive effect that nurses are acknowledging the importance of assessing and advocating for food

insecure patients. The post intervention showed that many more nurses are willing to become food advocates for their patients, assessing these patients at every visit and using the tool to ascertain and provide referral for those who are food insecure. The graph in figure 12 shows a significant difference in those who said yes (70%), ($n= 14$) and no (25%), ($n= 5$) pretest and those who said yes (100%), ($n= 5$) and no (0%), ($n= 0$) posttest. Table 2 shows a significant difference between the yes and no pre/posttest condition, $\chi^2(1, 36) = 4.91, p= .027$.

The last question 12, (Would you encourage your patients to speak up if having any issues with social determinants of health such as food, shelter or clothing?) bordered more on having a safe environment where these patients are encouraged to open up to their problems and this requires a lot of work from the nurses who should continually get involved with their patients not just on the medical issues but as far as social needs are concerned. Out of the 20 participants in the pretest, 18(90%) agreed they will encourage their patients to speak up if they have problems while only 2(10%) said no but after the presentation, all the 16(100%) participants in the posttest answered yes to encouraging their patients to speak up about their problems. There is no significant difference in the proportions of yes and no in the pre/posttest $\chi^2(1, 36) = 1.69, p= .193$ because nurses have always known to encourage patients to speak up if having issues. The intervention did not change the perception of the respondents, only (10%) responded no and (90%) yes in the pretest while (100%) said yes and (0%) said no in the posttest.

In analyzing the 12 questions through the pretest/posttests, the overall analysis showed a positive effect, though 6 out of the 12 questions showed a difference but was

not significant enough based on the chi square and z test analysis but may have been different if more time was allotted for the project in order to get a better analysis. The other 6 questions showed a significant difference and was mostly on implementing the food insecurity assessment, providing the right tools for the assessment and providing the right referral or resources for food insecure oncology patients. The overall findings with a p-value of .00375 which is significant at $P < .05$ suggests the educational program was successful and showed increase in knowledge after the educational intervention. The HFIAS tool and the referral/resources of available free foods/groceries will help alleviate most of the problems encountered by the nurses. Incorporating this tool and the resources showed how important it is for us as nurses to assess our patients, have a comprehensive knowledge of our patients, and provide a safe environment where they can open up and share their problems.

As nurses, we strive to help the food insecure patients secure help or solution to their problems through advocating for them, providing referrals and making sure these food insecure patients follow through with their care. Engaging in food insecurity assessment has helped elevate many health complications, reduced lengthy hospital stay, improved adherence to treatment and has also improved health outcome in many organizations. I believe same will be the situation in the oncology unit at the target hospital when applied as could be evidenced from the educational intervention.

Recommendations

This doctoral educational intervention was done for an oncology unit at the target hospital in order to increase awareness for the nurses in assessing oncology patients for

food insecurity and to also add assessing food insecurity as part of the everyday assessment for these patients. Food insecurity was identified as a dilemma among oncology patients and have led to increased length of stay, poor clinical outcomes, and increased cost as well as numerous health complications (Krishanasamy, Yoong, Chan, Chong, & Chinna, 2016). Food insecurity has been noted as a social and economic condition that leads to limited access to adequate food (USDA, 2019). To address this social problem, there is need to create awareness on food insecurity, assess the oncology patients and provide resources needed for food insecure oncology patients.

In order to do this, there is need to have continuous education about food insecurity assessment and should be added as the nurses' annual review for competency, and also engage nurses who are food advocates in the oncology clinic. making assessing of food insecurity a vital part of assessment for these oncology patients will help advert many health complications and non-adherence to treatment and nurses will be able to use the recommended tool to help with assessing patients as well as provide the necessary resources needed by food insecure oncology patients.

Food insecurity should not only be for the oncology patients but could also be used in other units and departments such as the labour and delivery to help mothers who are food insecure, the cardiovascular clinics and diabetes clinics would also gain a lot by engaging in food insecurity assessment. I recommend that every health official or stakeholder in any health establishment and even in schools should engage in assessing food insecurity irrespective of tribe, race, culture or personal biases. There is need to have comprehensive knowledge of our patients in order to promote better health

outcome, adherence to treatment and a healthier society at large. It is estimated that people worldwide have food insecurity (Carollo, 2011), including 50 million Americans (Parpouchi & Heamer, 2018). Everyone should put hands on deck to eliminate this social dilemma ravaging our health.

Another recommendation in order to create awareness is to translate the HFIAS tools and resources into various languages such as Spanish, Cantonese, Mandarin, French, and Tagalong in order to be able to serve better our diverse oncology patients. Increasing the readability of a tool enhances knowledge and effectiveness of the use of the tool. This idea came up because not all our patients are literate with English language and to be able to get a number of patients to understand what is being asked, there is need to have the tool in a language they would understand better. The HFIAS tool is already in Spanish and French and can be accessed online and I am currently working on the translation of the tool and resources in Tagalong, Cantonese and Mandarin but would not be out by the time this project is done.

Contribution of the Doctoral Project Team

The project team consisted of a 3-member committee which was headed by the research coordinator at the target site, a manager and a staff nurse at the target hospital. The 3- member committee were very vital in the development, coordinating and collating of results. They were able to review my evidence, looked at the teaching plan, checked the pretest/posttests for content validity and helped put up a survey monkey to help with the participants responses. The team members included 10 experts (oncology nurses at the target site) to analyze the content validity of the project. They were presented with the

project, pretests and posttest to check if it was valid. Eight out of the 10 members agreed the project was essential, while 2 did not agree it was essential. There was no need for any changes based on the reviews done by the experts. The content validity was analyzed using the Lawshe content validity ratio (Lawshe, 1975). According to Lawshe, a CVR closer to 1.0 means the more essential the project is considered to be but non-essential if it is closer to -1.0 (Lawshe, 1975). This project was deemed more essential due to a CVR of 0.6.

The team members not only analyzed the project for content validity but were also available for meetings, arranged for the time and venue for the presentation and was able to connect me with the participants through the teams' network for the presentation. The team members also help to distribute the pre/posttests through the survey monkey and also collated the results for both the pretests and posttests before and after the presentation. The team members achieved an effective and efficient method of communication through prompt emails, text messaging and phone calls and were always promptly proof reading the paper to prevent errors. They also helped review my power point slides, making sure every aspect was covered and made necessary recommendations on how best to present, the time factor and how to deliver an excellent presentation.

Strengths and Limitations of the Project

Strengths

The educational project presentation was a successful one and was done among the nurses at the oncology clinic at the target site. There was a great feedback and stories

from the nurses on how they had experiences with not assessing food insecurity in their patients and the negative effect this has caused. I gave them my personal experience of how I realized the need to assess our patients for this social problem of food insecurity and they nurses agreed with me the importance to assess our patients for food insecurity.

As a result of this success, I received invitation from other departments like the patient care coordinators, and the administrators at the target site to present my project which I did. I have been also able to share my passion on assessing for food insecurity to some nurses in other hospitals who also saw this as a good avenue to assess their patients and to get to know them beyond medical needs. This showed that the assessing of patients for food insecurity is very vital and should not be limited to the oncology patients but could also be applied in medical surgical units, intensive care units, behavioral health, psych wards, for diabetes, cardiovascular and maternity patients. It should also be incorporated in all outpatient units as food insecurity is a social dilemma that needs to be eradicated.

Limitations

The limitations to my project were that due to covid restrictions, the earlier plan to have this presentation done in a place could not hold and so we had to use a zoom-like system called teams network at the target site, this prevented us from knowing if the same participant answered both the pretest and the posttest. So as a result of this, a paired t-test could not be done and we had to use a question-by-question analysis. Secondly, the time allotted for the presentation was not enough to really go in-depth to the importance of assessing food insecurity in oncology patients, the negative impact if not done and food

insecurity as a social dilemma that needs to be tackled. Though these limitations were inherent, the overall project presentation showed a positive increase in knowledge among the nurses as can be evidenced in the pretest/posttests and would help provide a favorable health outcome if practiced.

Section 5: Dissemination Plan

Food insecurity may lead to clinical and economic consequences that affect survival rates among cancer patients (Gany et al., 2014). Nurses need to be encouraged to practice a holistic health assessment that includes assessing these patients for emotional, mental, and spiritual well-being instead of just focusing on physical health (Lamar University, 2018). Assessing for food insecurity will help improve the care of oncology patients and would lead to continuity of care and better health outcome for food insecure oncology patients.

To disseminate the findings, I plan to put a small video clip on the importance of assessing patients for food insecurity online in the hospital educational package, which will also be added to the nurses' annual review for competency. I am also making effort in translating the HFIAS tool and the referral resources in various languages such as Spanish, Cantonese, Mandarin, Tagalong, and French in order to increase the readability for diverse patients. These resources will be physically available in the units at the target site. Additionally, introducing this topic in various nursing seminars and conferences will help disseminate the information to a wider coverage in order to drive home the importance of assessing food insecurity in our patients. Finally, I will engage in publishing the need for assessing food insecurity in various nursing and health care journals to increase the knowledge of not just nurses in oncology units but for every health care worker.

Analysis of Self

This project has been an interesting topic for me, as it was developed out of my personal encounter with an oncology patient of mine many years back. It has now become my passion to educate about food insecurity and to remain a food advocate for my patients irrespective of their race, ethnicity, language, culture, or my personal bias. Throughout my DNP study, I have come to appreciate that the work of the nurses does not just end in assessing the physical and medical needs of patients. Nurses are there to assess physical, mental, emotional, social, and medical needs. Having a comprehensive knowledge of patients helps create a better treatment plan and solution to patients' problems.

Educating other nurses at the target site and other hospitals have been so much fun for me, and I am happy that so many nurses are willing to undergo this journey of being a food advocate for our patients. The journey of writing, introducing, presenting, and implementing this project has not been an easy one, many obstacles were met. The biggest challenge was the covid pandemic at the beginning of my clinicals and disrupted my plan and study and caused a delay in finishing up the program. But all these experiences as a DNP student have helped shaped me in who I am today. Through this program, I have achieved the confidence and leadership skills needed to work in any establishment and to be able to face our patients equipped with knowledge that would help find solutions to their problems.

Summary

Food insecurity assessment of oncology patients as an educational intervention for the nurses was to help create awareness for those nurses who lacked knowledge of food insecurity and also to show how vital making food insecurity as part of assessment for our oncology patients will help improve a healthy outcome. Food insecurity has been noted to be part of the social determinants of health and as such should be tackled to avoid a negative impact. Studies carried out in the past have shown that food insecurity in cancer patients have resulted in increased length of stay, and have caused poor clinical outcomes as well as increase the cost of paying for health and various health complications (Krishanasamy, Yoong, Chan, Chong, & Chinna, 2016). The importance of assessing food insecurity among cancer patients were explained using two theories, the Maslow's' hierarchy of need theory and the Virginia Henderson nursing need theory. These two theories basically stated that food insecurity which is a part of the physiological need of human must be satisfied before we can move on to another need above the first step. In other words, these patients should be food secure before they are able to think about taking care of their medical needs.

The practiced focused question for this educational intervention was “Will educating the nursing staff on assessing for food insecurity lead to improved nutritional assessment and referral for oncology patients”? The study helped us understanding the barriers nurses were facing such as time constraints and lack of knowledge about food insecurity and hence were not assessing their patients for food insecurity. A pre/posttests assessment were used among oncology nurses at the target site and an educational

intervention was used to create awareness and provide knowledge on assessment of food insecurity among oncology patients. The intervention showed that there was an increase in knowledge on food insecurity among the nurses and these results have yielded a positive finding. The study has shown the importance of educating the nurses to create awareness and increase knowledge in order to achieve a favorable health outcome, prevent non- adherence to treatment plan, and provide continuity of care for our oncology patients.

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Appendix A: Pre and Post-Test Questionnaire

Questionnaire to assess if nurses and other clinicians assess for food insecurity among oncology patients.

1. Do you know what food insecurity is?
Yes No
2. Do you address food insecurity among oncology patients?
Yes No
3. As a nurse, do you think food insecurity should be part of patient health assessment?
Yes No
4. Do you assess oncology patients for food insecurity with each visit to ascertain their status?
Yes No
5. Are there any barriers for assessing food insecurity among oncology patients during their oncology health visits?
Yes No
6. Do you have a tool/criterion to use in assessing for food insecurity?
7. Yes No
8. Do you think assessing patients for food insecurity should be included at every visit or at regular intervals?
Yes No

9. Do you have available resources for referral to secure foods easily in the community? Yes No
10. Do you know that food insecurity is one of the social determinants of health? Yes No
11. Do you think food insecurity poses a health risk for oncology patients? Yes No
12. As a nurse, do you plan to become a food advocate for your patients who are food insecure? Yes No
13. Would you encourage your patients to speak up if having any issues with social determinants of health such as food, shelter or clothing? Yes No

Appendix B: Teaching Plan

Teaching Plan

Walden University

July 26, 2021

Chinelo Onwuazombe

Topic:

Food Insecurity among oncology patients: Educational Intervention for nurses and other clinicians.

Goals:

- To increase staff knowledge on food insecurity assessment among oncology patients.
- To train nursing staff on the use of the HFIAS scale as a tool for assessing food insecurity as part of daily assessments for oncology patients.

Learning Objectives:

- **By the end of this lesson:**
- The nursing staff would have gained increased knowledge on food insecurity assessment.
- There would be an understanding on the need to assess oncology patients for food insecurity during their daily health assessment.
- They would be able to evaluate and make referral of available resources to oncology families who are food insecure.

- The nursing staff will be able to demonstrate effectively how to use the HFIAS scale to assess for food insecurity in oncology patients.

Method/Delivery:

- Educational presentation will be through a 1 hour zoom class with PowerPoint slides. The HFIAS tool will be introduced to help with food insecurity assessment and also provide available resources on free foods within the community.
- Pre/posttests will be administered prior to teaching and after the teaching

Agenda:

- Welcome and Introductions
- Pretest
- Overview of food insecurity and its relationship to oncology patients
- HFIAS tool- educate staff on how to use the tool
- Discussions
- Posttest

Appendix C: Household Food Insecurity Access Scale (HFIAS) Measurement Tool

No	Question	Response Options	CODE
1.	In the past four weeks, did you worry that your household would not have enough food?	0 = No (skip to Q2) 1=Yes
1.a	How often did this happen?	= Rarely (once or twice in the past four weeks) = Sometimes (three to ten times in the past four weeks) = Often (more than ten times in the past four weeks)
2.	In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?	0 = No (skip to Q3) 1=Yes
2.a	How often did this happen?	= Rarely (once or twice in the past four weeks) = Sometimes (three to ten times in the past four weeks) = Often (more than ten times in the past four weeks)
3.	In the past four weeks, did you or any household member have to eat a limited variety of foods due to a lack of resources?	= No (skip to Q4) = Yes
3.a	How often did this happen?	= Rarely (once or twice in the past four weeks) = Sometimes (three to ten times in the past four weeks) = Often (more than ten times in the past four weeks)
4.	In the past four weeks, did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?	= No (skip to Q5) = Yes
5.	In the past four weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?	= No (skip to Q6) = Yes
5.a	How often did this happen?	= Rarely (once or twice in the past four weeks) = Sometimes (three to ten times in the past four weeks) = Often (more than ten times in the past four weeks)
6.	In the past four weeks, did you or any other household member have to eat fewer meals in a day because there was not enough food?	= No (skip to Q7) = Yes
6.a	How often did this happen?	= Rarely (once or twice in the past four weeks) = Sometimes (three to ten times in the past four weeks) = Often (more than ten times in the past four weeks)
7.	In the past four weeks, was there ever no food to eat of any kind in your household because of lack of resources to get food?	= No (skip to Q8) = Yes
7.a	How often did this happen?	= Rarely (once or twice in the past four weeks) = Sometimes (three to ten times in the past four weeks) = Often (more than ten times in the past four weeks)

8.	In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food?	= No (skip to Q9) = Yes
8.a	How often did this happen?	= Rarely (once or twice in the past four weeks) = Sometimes (three to ten times in the past four weeks) = Often (more than ten times in the past four weeks)
9.	In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?	= No (questionnaire is finished) = Yes
9.a	How often did this happen?	= Rarely (once or twice in the past four weeks) = Sometimes (three to ten times in the past four weeks) = Often (more than ten times in the past four weeks)

Coates, Swindale & Bilinsky, Household Food Insecurity Access Scale, (2007)

Appendix E: Letter of Approval

KAISER PERMANENTE@

Date: July 28, 2020
Subject: RDO KPNC 20 - 106
Title: Food Insecurity in Oncology Patients: Educational Intervention for Nurses and other Clinicians

Dear Chinelo Onwuazombe:

The Research Determination Committee for the Kaiser Permanente Northern California region has reviewed the documents submitted for the above referenced project. The project does not meet the regulatory definition of research involving human subjects as noted here:

Not Research

The activity does not meet the regulatory definition of research at 45 CFR 46.102(d): Research means a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge.

This determination is based on the information provided. If the scope or nature of the project changes in a manner that could impact this review, please resubmit for a new determination. The word "research" should not appear in any posters or publications resulting from this project. Further, if publications, presentations or posters are generated from this project the following wording must be used to reference to the project research determination outcome:

"The Research Determination Committee for the Kaiser Permanente Northern California region has determined the project does not meet the regulatory definition of research involving human subjects per 45 CFR 46.102(d) "

You are expected, however, to implement your study or project in a manner congruent with accepted professional standards and ethical guidelines as described in the Belmont Report (<http://www.hhs.gov/ohrp/humansubjects/guidance/belmont.html>).

Additionally, you are responsible for keeping a copy of this determination letter in your project files as it may be necessary to demonstrate that your project was properly reviewed.

Provide this approval letter to the Physician in Charge (PIC), your Area Manager, and Chief of Service, to determine whether additional approvals are needed.

Sincerely,

The Research Determination Committee
KPNC-RDO@kp.org