

BEST PRACTICES IN INTEGRATIVE MODALITIES FOR BREAST CANCER
PATIENTS AND SURVIORS

By

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A Thesis Submitted to The Honors College

In Partial Fulfillment of the Bachelor degree
With Honors in

Nursing

THE UNIVERSITY OF ARIZONA

DECEMBER 2020

Approved by:

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Abstract

Background: Breast cancer is a major disease process that impacts millions of women per year. The current treatment options are extremely invasive, contribute adverse side effects that are difficult to manage, and place a financial burden on the patient population. Research on integrative health is evolving daily and vast amount of research provides hope for more evidence-based integrative care of women with breast cancer in the future. Evidence-based integrative intervention implementation encompasses the principles of integrative nursing and best nursing practice.

Aim: This thesis aims to develop evidence-based best practice recommendations for using integrative modalities to reduce symptoms related to cancer treatment and improve the health-related quality-of-life for individuals diagnosed with breast cancer.

Methods: PubMed database was searched for published studies. The literature review assessed the effects of yoga and mindfulness-based interventions on quality-of-life for women with breast cancer.

Conclusion: The literature search identified 6 articles. Yoga is a specific integrative modality that can be recommended as an evidence-based intervention to alleviate symptoms and provide supportive care for the breast cancer patient population. Mindfulness-Based Stress Reduction and Mindfulness-Based Cognitive Therapy are safe and potentially beneficial integrative interventions to improve quality-of-life; however, further research via well-designed controlled studies along with significant outcomes are needed before mindfulness can be distinguished as evidence-based.

CHAPTER 1

Introduction

Statement of Purpose

This thesis aims to develop evidence-based best practice recommendations for using integrative modalities to reduce symptoms related to cancer treatment and improve the health-related quality-of-life for individuals diagnosed with breast cancer. The best practice recommendations presented in this thesis are supported by evidence-based research. Integrative health modalities, their importance, and relevance with respect to breast cancer patients will be discussed followed by a review of the current literature on the topic. Following this review of literature, the evidence-based best practice recommendations and their ability to improve the health-related quality-of-life for individuals will be presented.

Background of Issue

Breast cancer is an important disease process within the scope of women's health because it has become the "most common cancer affecting women worldwide" (Shah, Rosso, & Nathanson, p. 283, 2014). Much research has been conducted in order to understand the pathophysiology related to the disease process and the appropriate treatment options. Though there are many types of breast cancer such as ductal carcinoma in situ and invasive carcinoma, in addition to less common breast cancers such as angiosarcoma and phyllodes tumors, breast cancer is a result of cells abnormally growing and dividing (Mayo Clinic Staff, 2019). The mutated cells forming in the breast tissue usually form into a tumor and often are felt as a lump in the breast (Mayo Clinic Staff, 2019).

There are a variety of risk factors that increase the risk of developing breast cancer. One of the most prevalent risk factors associated with this disease process is gender. Women are

significantly more likely to develop breast cancer when compared to men due to their breast tissue. Lifestyle and environmental risk factors include radiation exposure, obesity, alcohol, diets high in soy and red meat, and environmental chemical exposure. Biological risk factors include increased age, personal or family history of breast cancer. Reproductive risk factors include menarche at a younger than average age, beginning menopause at an older than average age, having a first child at an older than average age, and never having been pregnant. Though these risk factors are associated with an increased risk of developing breast cancer, these risk factors will not guarantee the development of the disease process (Mayo Clinic Staff, 2019).

Breast cancer clinical manifestations vary according to the type and stage of cancer, but the primary manifestation presents as painless lumps within the breast tissue. Other common clinical manifestations include nodes in the axilla, dimpling of the breast tissue, and bone pain which is a late symptom related to metastasis (McCance & Huether, 2014). Chest pain, dilated blood vessels, edema, hemorrhage, nipple eczema/discharge, reddened skin, local tenderness, and warmth are also symptoms associated with breast cancer (McCance & Huether, 2014). Treatment of breast cancer is dependent on the stage and grade of cancer and patient preferences. Treatment options include radiation, chemotherapy, surgery, hormone and biological therapy (McCance & Huether, 2014).

Significance of the Problem

Cancer has become a problem globally and breast cancer specifically is a major disease that has had a negative impact on women's health with over two million people being diagnosed globally per year (Bray et al., 2018). Each year in the United States, about 250,000 women are diagnosed with breast cancer while 2,300 men are diagnosed. Of those 250,000 cases about 42,000 women die and of those 2,300 cases about 510 men die in the United States each year

from breast cancer (CDC, 2020). In 2016, the American Society of Clinical Oncology designated financial toxicity as a side effect to cancer treatment in the United States (American Society of Clinical Oncology, 2020). According to the National Cancer Institute, the average net cost of care per breast cancer patient from 2010-2020 in the US is initially 23,078 dollars along with a minimum continuing cost of 2,207 dollars per year (Mariotto, Yabroff, Shao, Feuer, & Brown, 2011). Other factors such as obtaining insurance, single family households, comorbidities, job security, etc. influence the annual average cost. In addition, the national cost of cancer care is expected to increase over the next few years (Mariotto, et al., 2011).

The current treatment options for breast cancer include surgery, radiation, and chemotherapy, hormone and biological therapy, which all can contribute adverse side effects that decrease the health-quality-of-life (Mayo Clinic Staff, 2019). The side effects associated with these invasive treatments “interferes with the body’s metabolism and energy use, which increases tiredness, fatigue, anxiety, depression, and sensitivity to pain” (Taso et al., 2014). Though these treatment options are appropriate for cancer patients, the adverse effects can cause long term distress for patients actively being treated for cancer and breast cancer survivors.

Current pharmacologic interventions used to manage treatment and side effects include anti-emetics, psychotropic medications, and pain medications. Other additional tools used to cope with treatment and side effects include nutrition, physical exercise, and support groups. Nurses are on the front lines caring for patients with cancer, and key in managing post treatment symptoms.

Integrative Modalities

The term quality-of-life (QoL) is being used as a “primary outcome measure” to evaluate the effectiveness of treatment and the general well-being of patients (Heydarnejad, Hassanpour, & Solati, 2011). QoL includes the “physical, emotional, mental, social, and behavioral components”

of the patient's life (Heydarnejad, Hassanpour, & Solati, 2011). Though the treatment options are often effective in treating the specific organ and disease process, the adverse effects associated with the treatments have a negative impact on the whole person and their QoL. Integrative health care is a growing field that is now being used in conjunction with conventional cancer treatments in order to improve QoL.

The term "integrative" is used to describe health care approaches that fall outside of the scope of conventional medicine. The National Center for Complementary and Integrative Health (NIH) defines Integrative health refers to a "holistic, patient-focused approach to health care and wellness" (NIH, 2018, Integrative health section). Integrative health care treats the whole person rather than a specific disease process or organ. "Mental, emotional, functional, spiritual, social, and community aspects" are treated in the holistic health care model (NIH, 2018, Integrative health section). A principle of integrative nursing is to use a wide variety of therapies from least invasive to more invasive and to use modalities that are evidence informed. The research of integrative approaches to health and wellness and their potential benefits are constantly evolving in a variety of different situations. One of those areas being relief of symptoms in cancer patients and survivors. Examples of integrative modalities utilized for cancer patients and survivors include mind body practices such as yoga, chiropractic manipulation, breathing exercises, meditation, acupuncture, guided imagery, and tai chi. Evidence-based research has shown positive effects of integrative modalities to reduce symptoms related to cancer treatment and improve the health-related QoL for individuals (Taso, Lin, Lin, Chen, Huang, & Chen, 2014).

Mindfulness is a promising intervention for cancer patients that have a particular interest or need in mind-body treatment (Bower, Crosswell, Stanton, Crespi, Winston, Arevalo, Ma, Cole, Ganz, 2015). The goal of mindfulness is to awaken the inner mental, emotional, and physical

process within the body. Mindfulness is the innate ability to be fully present and aware while not being overly reactive nor overwhelmed by our environment (Mindful, 2019). Mindfulness intervention is practiced by “bringing attention to one’s present moment, experiences, including thoughts, feelings, and physical sensation, with openness, curiosity, and acceptance (Bower et al., 2015, p. 2). Current literature has explored this intervention and the effects on symptoms related to cancer treatment such as fatigue, anxiety, pain, and depression.

Relevance to Nursing

Nurses make great impacts in their patients’ lives by developing personalized care and fostering positive relationships. Kreitzer & Koithan define six principles of integrative nursing and the second principle is defined as “human beings [having] the innate capacity for health and wellbeing” (Kreitzer & Koithan, 2019). Nurses have a responsibility to care for the patient’s mind, body, and soul. Nurses can increase QoL by providing patients and their family members with education on best practice interventions that can increase their level of well-being.

Integrative health modalities are therapeutic interventions that nurses can educate themselves about and then present the learned information to their oncology patients. Being informed about these modalities is a tool that nurses can use in their care for breast cancer patients and ultimately contribute to health and well-being.

Summary

Best practice integrative health modalities are needed to help breast cancer patients reduce symptoms related to cancer treatment and improve health related QoL. Current treatment options for breast cancer are invasive and contribute adverse effects that decrease their mental and physical health as well as increase financial burden. The literature review that follows compiles research that supports integrative health practices as therapeutic interventions for

helping women suffering from breast cancer reduce the adverse effects associated with cancer treatment and improve their quality-of-life.

CHAPTER 2

Review of Literature

Chapter two will address a compilation of scientific literature discussing the findings regarding integrative health modalities to improve QoL for breast cancer patients and survivors. To guide the literature search, the PICOT(S) question used was, in patients suffering and recovering from breast cancer, can integrative health interventions improve health-related quality-of-life? The database used to search for existing research that may answer this question was PubMed. The studies and reviews were published between the years of 2010-2018, and the search terms “breast cancer,” “integrative health,” “yoga,” “mindfulness,” and “massage” were utilized. Scholarly articles that were included in this review were based upon their ability to answer the PICOT(S) question and their ability to support the proposed best practice recommendations presented in chapter three.

Integrative Health Modalities for Breast Cancer Patients and Survivors

Yoga Interventions

A quantitative study conducted by Yagil & Ulger (2015) aimed to determine if elderly women with breast cancer benefited from the intervention of yoga and if yoga increased the QoL compared to patients that received a routine exercise program. The study used convenience sampling and the sample size consisted of 20 female patients between the ages of 65-70 who were randomized into group 1 or group 2. Group 1 participants attended a yoga program while group 2 participants attended an exercise program (Yagil & Ulger, 2015). The inclusion factor was at least 6 months must have passed since the patient last received chemotherapy. The exclusion factors, patients must not be at risk for infection, actively receiving chemotherapy/radiation therapy, have cognitive impairment, mobility issues, or actively

participating in other yoga/exercise programs (Yagil & Ulger, 2015). The two groups completed one-hour sessions each week for a total of eight sessions. Group 1 sessions were led by one physiotherapist that was also a yoga teacher. The session consisted of 15 minutes of breath exercises, 15 minutes of asanas, and 30 minutes of relaxation and meditation (Yagil & Ulger, 2015). Group 2 sessions were led by the same physiotherapist and the sessions consisted of 15 minutes of breathing exercises, 40 minutes of physical exercise, and 5 minutes of cool down exercises (Yagil & Ulger, 2015). The Turkish version of the Nottingham Health Profile (NHP) was used to assess the QoL, depression, pain, fatigue, and sleep quality both before and after the programs. The Turkish Beck Depression Inventory (BDI) was used to assess the emotional level of the participants (Yagil & Ulger, 2015). Finally, the visual analog scale (VAS) was used to assess the severity of pain, fatigue, and sleep quality at the first session and at the end of the study (Yagil & Ulger, 2015). The results provide evidence that both yoga and exercise can improve the QoL, and decrease pain, fatigue, depression, and sleep disturbance (Yagil & Ulger, 2015). The study found that the QoL scores after both the yoga and exercise program were improved compared to the scores obtained at the beginning of the study ($p < 0.05$). There was a statistical difference when the groups were compared after the programs favoring group 1 ($p < 0.05$) in fatigue and sleep quality (Yagil & Ulger, 2015). Strengths of this study include that the subjects were randomized and that several other studies show evidence that exercise and stress reduction interventions can have a positive effect on cancer patients' health related QoL (Yagil & Ulger, 2015). It is important to acknowledge the limitations of this study. The small sample size limits the statistical evidence and generalizability. The study contributes evidence that yoga offers benefits to elderly patients with breast cancer and their health related QoL. However, improvements in QoL were seen in both programs of physical exercise and yoga.

Taso, Lin, Lin, Chen, Huang, & Chen (2014) examined if a yoga program could promote health in terms of depression, anxiety, and fatigue in women with breast cancer undergoing adjuvant chemotherapy. The study used purposeful sampling techniques to recruit women with breast cancer between April 2011 and September 2011 from Chi Mei Medical Center in Taiwan. Statistical Software Sample Power 2.0 and analysis of covariance statistical methods was used to determine the sample size of each group (Taso, Lin, Lin, Chen, Huang, & Chen, 2014). The inclusion factors for the study included diagnosis of Stages 1-3 breast cancer, between the ages of 20-70, clear minded/literate, able to speak both Mandarin and Taiwanese, never performed yoga exercise, no history of mental disorder, consent to participate, healed wounds, and a minimum of one month since surgery (Taso et al., 2014). The exclusion criteria included diagnosis of bone metastasis, less than 10 mg/dL hemoglobin, less than 50,000 platelets, and current use of antidepressant, antianxiety, or psychotropic medications (Taso et al., 2014). Sixty women participated in the study and were randomly placed into the experimental or control group. The experimental group participated in yoga twice a week for an hour each session for a total of eight weeks. The yoga intervention consisted of 10 minutes of meditation, 40 minutes of yoga exercise, and 10 minutes of cool-down stretching. In order to ensure consistency an experienced yoga instructor taught the class using standardized techniques in the yoga sessions (Taso et al., 2014). A 5-point Likert scale was used to assess depression and anxiety experienced by patients. The Brief fatigue Inventory (BFI) was a questionnaire used to rapidly assess fatigue during chemotherapy treatment. The SPSS Version 17.0 was used to analyze the data and a chi-square compared the categorical variables of the two groups. Finally, an analysis of variance was

used to test whether group or time exhibited effects on depression, anxiety, and fatigue (Taso et al., 2014). The results indicate that the experimental group had improved the level of fatigue after the yoga intervention. The fatigue level and influence of fatigue on the patients' daily life were lower after the eight-week yoga intervention ($F= 62.95, p < .001$ and $F= 53.53, p < .001$) (Taso et al., 2014). On the contrary, the results do not support alleviating depression and anxiety in patients with breast cancer because the baseline scores for depression and anxiety were low which left little room for improvement and could be a potential reason no significant findings were found (Taso et al., 2014). There are several limiting factors within the study. The first, the study did not use a double-blind approach which made the participants aware of the yoga intervention which could have potentially resulted in the Hawthorne effect. The Hawthorne effect is defined by subjects in a study altering their behavior because they are aware of what is being evaluated or observed (Taso et al., 2014). Another limitation includes a lack of generalizability because the yoga program was designed specifically for the population of this study. Finally, the restricted variables that may have influenced the participants' adaptive abilities to fatigue were not integrated nor analyzed (Taso et al., 2014). The strengths of this study include that the study subjects were randomly placed into either the experimental or control groups, the methods used to collect and analyze data, and other research supporting yoga intervention in patients with breast cancer.

Komatsu, Yagasaki, Yamauchi, Yamauchi, & Takebayashi (2015) conducted research to determine if a self-directed at home yoga program was beneficial for women with breast cancer going through chemotherapy. This study and used convenience sampling to recruit patients from

St. Luke's International Hospital in Tokyo, Japan (Komatsu, Yagasaki, Yamauchi, Yamauchi, & Takebayashi, 2015). The inclusion factors were patients must be receiving chemotherapy, experiencing multiple symptoms of cognitive impairment, a minimum of twenty years of age or older, and also able to complete a questionnaire in Japanese (Komatsu et al., 2015). The exclusion factors included severe cognitive impairment, receiving psychiatric or metastatic treatment, currently practicing yoga or yoga practice within the past three months (Komatsu et al., 2015). Eighteen participants completed the study. The yoga intervention included an orientation led by a yoga instructor, a booklet of information of the yoga program, and a DVD of a self-directed yoga program (Komatsu et al., 2015). In addition, participants of the study kept a journal that was detailed in the dates of practice, the specific yoga course that they practiced and what time, and the days the participants received chemotherapy treatment (Komatsu et al., 2015). A 4-point Likert scale and evaluation were used at the end of the program and the participants evaluated the clarity of the self-directed program, how easy the program was to follow and understand, their interest and usefulness, and the satisfaction with the program and if they would continue (Komatsu et al., 2015). The Cancer Fatigue Scale was used to assess the fatigue of the individuals with cancer. The Functional Assessment of Breast Cancer Therapy was used to measure the QoL (Komatsu et al., 2015). The pre- and post-intervention data was compared with a Wilcoxon signed-rank test and the statistical significance was $p < 0.05$ and analyzed using SPSS version 17 (Komatsu et al., 2015). The results of this study suggested that the home yoga program is safe and beneficial for breast cancer patients with cognitive complaints, but no changes were observed for fatigue. The p values were as followed, cognitive function was .21,

fatigue was .45, and QoL was .2 and these values are not statistically significant (Komatsu et al., 2015). Since the data was collected thru survey, the study relied on self-reporting that may have resulted in over or under-reporting bias. In addition, reliability of the CFQ has yet to be established. There is also inherent bias since this study was not randomized. Lastly, generalizability was limited because the study was conducted at one institution and each participant was Japanese (Komatsu et al., 2015). The strengths provided in this study was the yoga protocol developed by a yoga instructor with fifteen years of experience working with elderly and oncology patients. The weaknesses of this study include the limitations of bias, lack of generalizability, small sample size (Komatsu et al., 2015).

Jong, Boers, Schouten van der Velden, Meij, Göker, Timmer-Bonte, van Wietmarschen (2018) conducted a randomized control study was to compare if yoga in addition to standard care or just standard care is more effective in women with breast cancer receiving chemotherapy (Jong, Boers, Schouten, Meij, Goker, Timmer-Bonter, & Van Wietmarschen, 2018). The study was conducted in the Netherlands and the sampling technique was a convenience sample and was taken from three different hospitals. The inclusion factors were women between 18 and 70 years old with stage 1-3 breast cancer, receiving adjuvant chemotherapy, speak Dutch, and have access to a phone and the internet (Jong et al., 2018). The exclusion factors were women who previously received treatment with cytostatics, malignancies such as metastasis, deafness, cognitive or psychiatric deficits, or participation in stress reduction programs (Jong et al., 2018). The total number of participants was calculated to be 104 women and the participants were randomized into a control group or experimental group. The control group only received

standard care while the experimental group received standard care in addition to the yoga program (Jong et al., 2018). The yoga program was designed for women with breast cancer to reduce fatigue and improve their QoL and the instructors were certified and had over five years of experience working specifically with cancer patients (Jong et al., 2018). The program was conducted over twelve weeks and the weekly sessions were 75 minutes long. The study also provided the women with a CD or MP3, so they could practice relaxation exercises at home (Jong et al., 2018). The primary outcome measured was fatigue with a multidimensional Fatigue Inventory and the secondary outcome measure was health related QoL with a QoL questionnaire (Jong et al., 2018). A Chi-square was used to compare the variables. The statistical analysis was done at baseline, after three months, and then after six months. The results did not find any statistical significance in the primary outcome of fatigue between the two groups and this is assumed to be true because the sample size was too small to detect a significant difference (Jong et al., 2018). However, women in the experimental group did improve in the secondary outcome of QoL from baseline ($p=0.045$) to follow up visits ($p= 0.001$) (Jong et al., 2018). Reduction in nausea and vomiting was reported after the six-month yoga program. A reduction in depression symptoms was reported after 3-months into the yoga program (Jong et al., 2018). There are limitations that must be considered when analyzing this randomized control study. The first limitation was the difficulty recruiting women for the study and having the participants follow through with the whole study. The researchers reported that 22% of the participants dropped out of the study and 20% did not complete the follow up visits (Jong et al., 2018). The second limitation was the imbalance between the control and experimental group because the

randomization technique used placed more women into the experimental group than the control group (Jong et al., 2018). The strengths of this study include that the study was randomized, and the methods used to analyze the data were reliable. In addition, the yoga program was designed specifically for breast cancer patients in aim to reduce their fatigue and increase their QoL and the yoga instructors had over five years of experience working with cancer patients (Jong et al., 2018). The weaknesses of this study included that there was a poor program adherence, and the sample size was too small and specific to patients in the Netherlands to be generalizable to a larger population (Jong et al., 2018).

Mindfulness Interventions

The authors Zhang, Liu, Li, Zhang, Zhang, Wang, & Wang (2019), conducted a systematic review to assess for the effect of mindfulness-based interventions and the QoL for women with breast cancer. The systematic review utilized PubMed, Cochrane library, EMBASE, Web of Science, and CINAHL and consisted of 15 studies (Zhang, Liu, Li, Zhang, Zhang, Wang, & Wang, 2019). The studies reviewed were clinical trials including adult women participants that were diagnosed with breast cancer stage 0-IV. The major interventions utilized in the studies were Mindfulness-Based Stress Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT) (Zhang, Liu, Li, Zhang, Zhang, Wang, & Wang, 2019). Studies that utilized other communicative therapy, mindfulness-based exercise, and art therapy were excluded from the systematic review. The quality of the articles within the review were assessed by two independent reviewers using the Downs and Black Quality Index (Zhang et al., 2019). The scale scored articles based upon reporting, external validity, bias, confounding variables, and power

(Zhang et al., 2019). The articles were then rated as excellent, good, moderate, and poor. One of the meta-analyses revealed that MBSR can improve the physical function and QoL for women with breast cancer (Zhang et al., 2019). Two other studies revealed that MBCT interventions can improve the QoL as well (Zhang et al., 2019). However, none of the studies provided adverse effects related to the interventions. Though the results show that there may be a potential benefit of MBSR and MBCT to be safe and effective interventions, further research is needed to assess the full effect. The strengths of this study are utilizing two reviewers and the Downs and Black Quality Index text when assessing the quality and strengths of the article. Another strength of this study was including fifteen articles within the review. There were two major limitations to this study. The first limitation, only two of the studies assessed the effects of MBCT and the other thirteen assessed MBSR (Zhang et al., 2019). The second limitation, only three of the studies reported reasons for drop-out and none reported the adverse effects of the interventions (Zhang et al., 2019). Due to these limitations, the safety of these interventions cannot be adequately assessed. In addition, five of the studies that were utilized did not have a control group. Further randomized control trials using MBCT and MBSR need to be utilized by women with breast cancer to assess the potential to improve their QoL.

The authors Bower, Crosswell, Stanton, Crespi, Winston, Arevalo, Ma, Cole, Ganz (2015), designed a randomized control trial to evaluate mindfulness-based intervention for women 50 and younger with breast cancer. The primary outcomes that were evaluated were stress symptoms, depressive symptoms, and inflammation (Bower, Crosswell, Stanton, Crespi, Winston, Arevalo, Ma, Cole, Ganz, 2015). The secondary outcomes that were evaluated were

behavioral symptoms, cancer-related distress, and psychological response (Bower et al., 2015). The RCT took place at UCLA Medical Center in Los Angeles, CA between 2011-2012. The participants were recruited by the internet, physician referrals, and invitations to women that had previously participated in other research studies (Bower et al., 2015). The interested women completed a telephone interview and needed to meet the inclusion criteria. The women must have been 50 and younger diagnosed with breast cancer stages 0-IV and had completed cancer therapy at least within the last 3 months (Bower et al., 2015). Women that had breast cancer recurrence, metastasis or other cancer diagnoses were excluded (Bower et al., 2015). In addition, women that had other active and uncontrollable comorbidities were excluded (Bower et al., 2015). Finally, women that could not commit to the intervention schedule were excluded (Bower et al., 2015). Seventy-one women were randomized into the intervention (n=39) or wait-list control group (n=32). In the first meeting, women completed questionnaires and provided the researchers with fasting blood samples that would be analyzed at the end of the study. The participants met for a two-hour group session over a six-week period on Mindful Awareness Practices (MAPs). The meetings included presentations and discussions on mindfulness, relaxation, mind-body connection; meditation, and gentle movement exercises (Bower et al., 2015). Group work included problem solving techniques for their concerns such as effective practice, difficult emotions, pain management, and kindness (Bower et al., 2015). The participants met for a 3-month follow up. Once the intervention group completed their MAPs program and follow up visit, the wait-list group was invited to participate in the MAPs program. Group differences were analyzed using bioinformatic analysis TELiS. The p values are as

follows: stress reduction ($P = .004$), depressive symptom reduction ($P = .094$), inflammatory response ($P = .001$), fatigue reduction ($P = .007$), sleep disturbance ($P = .015$), and night sweats ($P = .015$), positive affect ($P = .03$), and peace ($P = .001$) (Bower et al., 2015). The results show that mindfulness intervention may lead to short-term benefits to the woman in terms of their psychological, behavioral, and biological health and outcomes (Bower et al., 2015). Future research with a larger population size is needed to generalize these findings to other breast cancer survivors. Limitations of this study include that there was a relatively small sample size that limits generalizability and statistical power. Strengths of this study include that it is a randomized control trial and the researchers used younger breast cancer patients as their target population. There is little research targeted at the population of young women with breast cancer.

The authors Yun, M. R., Song, M., Jung, K. H., Yu, B. J., Lee, K. J. (2016) conducted a randomized control trial in South Korea to examine the effectiveness of mind subtraction meditation (MSM) and self-management education (SME) on breast cancer survivors. The four domains of physical, social, psychological, and spiritual were the main focus when examining their QoL (Yun, Song, Jung, Yu, & Lee, 2016). The women eligible for this study needed to be breast cancer survivors that completed chemotherapy, radiation, or surgery within the last two years and six months prior to the study (Yun, Song, Jung, Yu, & Lee, 2016). Women that had a relapse, another primary cancer, or uncontrolled psychiatric or chronic comorbidities were excluded. Women that previously participated in similar programs or could not complete the intervention sessions were also excluded (Yun, Song, Jung, Yu, & Lee, 2016). Women were recruited in Seoul, South Korea with recruitment flyers that were hung in surgery, oncology, and

radiology outpatient departments of Asan Medical Center (Yun, Song, Jung, Yu, & Lee, 2016). Participants were randomly assigned to the MSM (n= 26) or SME (n= 26) group. Following the study, women had the option to participate in the other program if they wanted to. Participants completed a questionnaire before the start of the intervention, at the fourth week of the intervention, and at the end of the intervention at eight weeks. The data from the study was collected in person through follow up sessions or by mail. The MSM group participated twice a week for two hours over an eight-week period for a total of sixteen sessions. Within the MSM program, four certified MSM instructors helped participants to identify their negative mindsets and used meditation to eliminate these mindsets (Yun, Song, Jung, Yu, & Lee, 2016). The participants were encouraged to practice at home via text messages and e-mails that were sent twice a week. The SME group participated in educational lectures once a week for two hours over a four-week period. The participants were educated by oncology nurses, dietitians, and professional coaches on topics such as relationship improvement, communication skills, stress management, enhancing comfort, and breast self- examinations (Yun, Song, Jung, Yu, & Lee, 2016). C*Power 3 program was used as statistical power analysis. When the MSM group was compared to the SME group, depression decreased ($P=.034$), anxiety decreased ($P =.036$), quality of sleep increased ($P= .010$), perceived stress decreased ($P =.009$), and the quality/satisfaction of life increased ($P< .001$) (Yun, Song, Jung, Yu, & Lee, 2016). One limitation to this study was extraneous factors influencing the dependent variables and therefore the effectiveness of meditation could not be evaluated. In addition, the small sample size recruited from one medical center limits the generalizability. One strength of this study is the use

of trained professionals to implement the interventions to the participants. This study demonstrated that mind subtraction meditation (MSM) may be useful for women with breast cancer and their management of psychological and spiritual health and improve their QOL and sleep (Yun, Song, Jung, Yu, & Lee, 2016).

Conclusion

There is preliminary evidence that integrative modalities such as yoga, mindfulness, and massage are effective as therapeutic interventions for breast cancer patients and survivors. A variety of studies have documented effective and safe benefits for women with breast cancer and improving the QoL. While these interventions are effective, future scientific research and support by healthcare professionals is needed to further establish the effectiveness of integrative modalities to improve quality of life for women affected by this disease process.

CHAPTER 3

Best Practice Recommendations: Integrative Modalities for Breast Cancer Patients

The purpose of this thesis was to develop evidence-based best practice recommendations for nursing, other health professionals, patients and survivors of breast cancer when recommending integrative modalities to reduce symptoms related to cancer treatment and improve the health-related quality of life. These recommendations are presented in Table 1. In recent years, healthcare professionals have advocated for an integrative approach to treating the mind, body, and spirit of the patient. Due to the developing nature of an evidence base supporting integrative health interventions, the recommendations are intended to guide healthcare professionals to interventions that are credible and would be beneficial for breast cancer patients and survivors.

Table 1:

Best Practice Recommendations for Integrative Modalities for Breast Cancer Patients

Recommendation	Rationale	References	Level of Evidence
Patients should be provided with a referral and given medical clearance for participation in yoga programs by an eligible provider e.g., oncologist, primary care physician, and/or palliative care physician	All four yoga research studies unanimously agreed appropriate clearance from physicians and exclusion factors are needed prior to the patient participating in the yoga modality to ensure patient safety. Exclusion factors include but are not limited to patients must not be at risk for infection, actively receiving chemotherapy/radiation therapy, have	Jong, M.C., Boers, I., Schouten van der Velden, A.P., Meij, S.V., Göker, E., Timmer-Bonte A.N.J.H., van Wietmarschen, H.A. (2018). A Randomized Study of Yoga for Fatigue and Quality of Life in Women with Breast Cancer Undergoing (Neo) Adjuvant Chemotherapy. <i>J Altern Complement Med.</i> 24(9-10):942-953. doi: 10.1089/acm.2018.0191.	Level II
		Komatsu, H., Yagasaki, K., Yamauchi, H., Yamauchi, T., & Takebayashi, T. (2016). A self-directed home yoga	Level III

	cognitive/psychiatric impairment, mobility issues, received treatment with cytostatics, malignancies such as metastasis, deafness, and diagnosis of bone metastasis, less than 10 mg/dL hemoglobin, less than 50,000 platelets, and current use of specific medications with severe side effects.	programme for women with breast cancer during chemotherapy: a feasible study. <i>Int J Nurs Pract</i> , 22(3): 258-66 doi: 10.1111	
		Taso, C.J., Lin, H.S., Lin, W.L., Chen, S. M., Huang, W.T., & Chen, S.W. (2014). The effect of yoga exercise on improving depression, anxiety, and fatigue in women with breast cancer: a randomized controlled trial. <i>J Nurse Res</i> , 22(3): 155-64 doi: 10.1097.	Level II
		Yagli, N.V., and Ulger, O. (2015). The effects of yoga on the quality of life and depression in elderly breast cancer patients. <i>Complement Ther Clin Pract</i> , 21(1):7-10 doi: 10.1016	Level II
Professional partnership between healthcare providers and yoga instructors to establish a safe and effective yoga program for the breast cancer population	Nurses and other healthcare professionals should collaborate with yoga practitioners to design future yoga interventions for breast cancer patients undergoing chemotherapy.	Komatsu, H., Yagasaki, K., Yamauchi, H., Yamauchi, T., & Takebayashi, T. (2016). A self-directed home yoga programme for women with breast cancer during chemotherapy: a feasible study. <i>Int J Nurs Pract</i> , 22(3): 258-66 doi: 10.1111	Level III
Consistent participation in yoga programs once a week for a minimum of 1 hour over 8 weeks positively benefit breast cancer patients	Participation in one yoga class a week for 8 weeks and consistent session attendance should be encouraged by nurses and healthcare providers to achieve significant improvement. Each yoga class is approximately one hour long.	Taso, C.J., Lin, H.S., Lin, W.L., Chen, S. M., Huang, W.T., & Chen, S.W. (2014). The effect of yoga exercise on improving depression, anxiety, and fatigue in women with breast cancer: a randomized controlled trial. <i>J Nurse Res</i> , 22(3): 155-64 doi: 10.1097.	Level II

	<p>Yoga programs positively facilitated cancer treatment and management for breast cancer patients as well as improved sleep quality and fatigue.</p>	<p>Yagli, N.V., and Ulger, O. (2015). The effects of yoga on the quality of life and depression in elderly breast cancer patients. <i>Complement Ther Clin Pract</i>, 21(1):7-10 doi: 10.1016</p>	<p>Level II</p>
<p>90-minute self-directed home yoga programs for a minimum of 4 weeks positively benefit for breast cancer patients with cognitive complaints during chemotherapy</p>	<p>Nurses and healthcare providers should educate the patients of risks of cognitive impairment associated with chemotherapy. In addition, suggest they participate in a self-directed home yoga program prior to starting chemotherapy to make the transition easier.</p> <p>Self-directed home yoga program improved cognitive fatigue when practiced for 90 minutes once a week over 4 weeks.</p>	<p>Komatsu, H., Yagasaki, K., Yamauchi, H., Yamauchi, T., & Takebayashi, T. (2016). A self-directed home yoga programme for women with breast cancer during chemotherapy: a feasible study. <i>Int J Nurs Pract</i>, 22(3): 258-66 doi: 10.1111</p>	<p>Level III</p>
<p>Mindfulness-Based interventions are effective and safe in improving quality-of-life among women with breast cancer when practiced for 2 hours each week over 6 weeks</p>	<p>Mindfulness-based intervention offers short-term benefit and improvement in psychological, behavioral, and biological outcomes by reducing stress, behavioral symptoms, and pro-inflammatory signaling.</p>	<p>Bower, J. E., Crosswell, A.D., Stanton, A. L., Crespi, C.M., Winston, D., Arevalo, J., Ma, J., Cole, S.W., & Ganz, P.A. (2015). Mindfulness meditation for younger breast cancer survivors: a randomized controlled trial. <i>Cancer</i>, 121(8), 1231-1240. Doi: 10.1002/cncr.29194.</p>	<p>Level II</p>
	<p>Mindfulness should be practiced 20 minutes per</p>	<p>Zhang, Z., Liu, D., Li, Y., Zhang, Y., Zhang, B., Wang, X., & Wang, G. (2019). Effects of mindfulness-based</p>	<p>Level I</p>

	<p>day for a minimum of 6 weeks.</p> <p>Women reported reduced neuropathic pain, decrease in pain intensity, increased in quality-of-life, and favorable effects on anxiety, trauma-related psychological symptoms, emotional and functional well-being with the mindful-based stress reduction (MBSR) intervention. MBSR intervention was utilized for 2 hours each week over 6 weeks on average.</p>	<p>interventions on quality of life of women with breast cancer: a systematic review. <i>Comparative effectiveness research</i>, 8(11), 829-840 doi: 10.2217</p>	
<p>Mind subtraction meditation (MSM) program is useful in management of psychological and spiritual distress, as well as improve quality-of-life and sleep when practiced for 2 hours each week over 8 weeks</p>	<p>High participation and attendance in the MSM program demonstrate the likelihood and applicability outside of research.</p> <p>MSM program conducted 2 hours per week over 8-week significantly decreased perceived stress depression, anxiety, and also increased quality-of-life, life satisfaction, posttraumatic growth, and quality of sleep.</p>	<p>Yun, M.R., Song, M., Jung, K.H., Yu, B.J., Lee, K.J. (2016). The effects of mind subtraction meditation on breast cancer survivors' psychological and spiritual well-being and sleep quality. <i>Cancer Nurse</i>, 40(5):377-385. doi: 10.1097.</p>	<p>Level II</p>

Summary of Best Practice Recommendations

Cancer treatment places extreme stress on the body and causes a multitude of adverse effects that require pharmacologic interventions, nonpharmacologic interventions and therapeutic nurse patient relationships. With regards to the patient's deteriorating physical and emotional health secondary to cancer treatment, there is evidence that integrative modalities may alleviate symptoms and produce positive impacts on a person's life. When recommending integrative interventions that combat the negative side effects of invasive cancer treatment, nurses need to be confident with the credibility of these integrative modalities when recommending the interventions to their patients as best practice. The recommendations for best practice are presented in Table 1. Holistic health modalities are now being utilized along with traditional medicine and the evidence of these modalities continue to grow with research. One important aspect when recommending these interventions to patients is emphasizing that the evidence of the interventions is supported and considered effective through research.

As research evidence accumulates in support of integrative modalities and its success in improving QoL for breast cancer patients and survivors, it is important for nurses and other healthcare providers to be educated on what interventions should be recommended to patients. The creation of evidence-based and evidence-informed best practice guidelines facilitate healthcare professionals to confidently present these interventions to patients in an efficient manner. These best practice guidelines are intended to aid healthcare professionals and the breast cancer population to appropriate tactics used to improve QoL. The breast cancer patient population is one of the largest oncology populations in healthcare and consists of many men and women that are currently going through treatment and are in remission. It is very important for healthcare professionals to identify which patients are a good fit to utilize these interventions

along with which interventions are appropriate for each patient. Based on the literature review it is recommended that women should utilize integrative modalities when they suffer from depression, anxiety, and/or fatigue.

The recommendations within chapter three of this thesis have potential to affect nurses and other healthcare professionals in their practice and care for oncology patient populations. Integrative health modalities and current practice for breast cancer may lessen the side effects of radiation and chemotherapy along with making these women feel empowered during their treatment and recovery. Patients are able to take some power back from their illness by practicing self-care rather than solely relying on invasive treatments for their health and well-being. In addition, nurses will be able to go the extra mile when providing to care and improve nurse patient therapeutic relationships by offering patients additional information and credible resources in the community for the patients to utilize for practice self-care of mind, body, and spirit.

CHAPTER 4

Implementation and Evaluation

This chapter will focus on the implementation and evaluation of an evidence-based educational module for nurses, other healthcare providers, and patients for integrative care for the breast cancer patient population experiencing adverse symptoms related to invasive cancer treatments. This education, based on the strongest body of evidence, will be utilized by healthcare providers and the breast cancer population to improve the health-related quality-of-life. The curriculum will be integrated into a hospital's specialty educational workshops for internal employees and into discharge planning and education to facilitate adoption by healthcare providers. Healthcare providers such as oncologists and oncology nurses will be presented with the opportunity to participate in a one-day course designed to develop the knowledge and expertise needed to teach and implement evidence-based integrative interventions by healthcare professionals. The course will feature a mix of group discussion, interactive lectures, and case-based studies regarding the experience and steps to recovery following treatment for breast cancer patients in addition to evidence-based integrative modalities that aid in helping these patients recover and gain a greater sense of control over their life and recovery. Following the course, attendees will be provided with links and resources to evidence-based research that supports integrative therapies and healing approaches that will be easily printable for reference by healthcare professionals and patients. These resources can be utilized as teaching materials by healthcare teams for the explanation of secondary symptoms related to the invasive treatments to breast cancer patients and their family members. By implementing educational programs and providing healthcare providers with educational resources to utilize within their plan of care, providers will feel more informed and confident in their knowledge of integrative modalities

which will allow them to provide the strongest and most recent evidence-based, patient-centered, appropriate care.

When a breast cancer patient has finished their cancer treatments such as surgery, radiation, chemotherapy, hormone and biological therapy and given medical clearance by an eligible provider, the patient will be provided with education and referral for integrative modality treatment. Following treatment or upon discharge it is routine for physicians and nurses to provide discharge instructions and patient education. Adverse side effects that are commonly experienced by the population related to the disease process and treatment plan as well as management of these symptoms are reviewed with the patient. Though these side effects are commonly managed with pharmacologic interventions, integrative health modalities are both cost effective and evidence-based interventions that can also be utilized for management. This is an opportunity for the healthcare team to collaborate and decide if their patient is eligible to receive the additional integrative education and referral to participate in the at home yoga program. After medical clearance for referral is received, patients will be provided with routine discharge instructions in addition to verbal education about integrative health and yoga as a specific evidence-based intervention to improve QoL and reduce symptoms related to cancer treatment. A printed resource will be provided within their discharge packet containing information on integrative modalities, yoga as an evidence-based intervention, and links to yoga YouTube videos to be utilized at home. The printed resource will be clear and provide thorough education for the patient to reference in the future. The YouTube videos linked on the resource will include an orientation led by a yoga instructor about the benefits, safety, and evidence behind the self-directed yoga program in addition to multiple yoga practice videos. In addition to frequent and consistent participation in the yoga program, patients will be encouraged to keep a

journal with dates of practice, clarity of the self-directed program, specific yoga videos they practiced, and details regarding secondary symptoms, physical health, and mental health they experienced. This journal will be reviewed at follow up appointments and help their healthcare team evaluate the ease of the program to follow and understand, patient interest and satisfaction, and most importantly the usefulness in improving QoL.

In order to implement the educational course and discharge program, the Plan-Do-Study-Act (PDSA) cycle will be utilized. The hospital will offer this course, over an eight-month period, for internal employees both in-person and an online course to provide convenience and paid work compensation. Giving hospital staff the option of taking the course in-person or online allows for convenience and ensures the pertinent information to be accessible to all and delivered in an efficient and effective manner. The PDSA cycle will provide a framework for the implementation into a single local facility. The PDSA cycle is commonly used to navigate the implementation of evidence-based research into the clinical setting (Institute for Healthcare Improvement, 2017).

This chapter will focus on the evaluation of the implemented hospital educational course, utilization of the knowledge on integrative health in patient care plans by healthcare providers, and the success of patients utilizing the education and yoga YouTube videos as a resource to improve health related quality-of-life with the PDSA cycle framework. The ‘plan’ and ‘do’ stages will be used to guide and implement the healthcare provider education through the hospital provided educational workshops. The ‘study’ stage of the PDSA cycle will help to identify the evaluation process of the hospital educational opportunity and its use by nurses and physicians; for example, checking a box and adding a discharge note in the patient’s electronic medical record (EMR) that the patient was eligible and provided with the discharge education

regarding integrative modalities, yoga as an evidence-based intervention, and links to yoga YouTube videos to be utilized at home. The ‘act’ stage will allow for feedback and changes to be made in the implementation processed based on the data from the previous stages of ‘plan’, ‘do’, and ‘study’. Evaluating the success of the staff education and EMR integration will be done through multiple PDSA cycles on a smaller scale to provide accurate feedback that can help guide future adaptations for implementation. However, there will also be a PDSA cycle that will look at the implementation and evaluation for the breast cancer patients utilizing the home yoga program. After the implementation has been completed at one hospital facility and with one group of breast cancer patients successfully, it could have the capacity to be utilized at multiple hospitals and oncology facilities. Finally, the strengths and limitations of the staff education and the integrative modality intervention to improve QoL and reduce symptoms related to cancer treatment for patients will be discussed in addition to any additional recommendations for future research related to the best practices in integrative modalities for breast cancer patients.

Implementation

Implementing a Hospital Education Course

Effectively implementing the most recent evidence-based education and interventions is challenging, timely, and costly to the hospital and their staff. Through the literature review, this paper has evaluated the research data and evidence-based best practice recommendations have been concluded. Utilizing the PDSA and protocol framework allows for modifications to be made to implement success and the education to be utilized at a larger capacity on multiple oncology units in multiple hospitals and outpatient facilities.

Plan. The first step in the PDSA cycle is planning which involved creating an objective for the intervention, making predictions about what will happen during implementation and why,

and creating a plan to test the change after data is collected (Institute for Healthcare Improvement, 2017). The success of the intervention and its ability to facilitate sustainable change in the oncology subsystem of medicine, is dependent on timely and thorough planning by a committee of healthcare professionals. The planning committee would be formed a year prior to implementation and consist of nurses, nurse educators, nurse practitioners, nursing managers, physician assistants, physicians, and other primary stakeholders from the hospital. The committee will develop an evidence-based integrative health curriculum and discharge protocol to align to their specific institution to be implemented the following year. The educational curriculum and discharge protocol will then be approved by the hospital board and dispersed to the oncology to unit managers to then go into effect.

The curriculum will be designed by the committee and the nurse educators will have an emphasis in the establishment of this course. The nurse educators will be the ones to lead the in-person course for all healthcare providers that have the possibility of interacting with breast cancer patients. After the course is finalized, a group of nurse educators will be trained to become experts on the discharge education, integrative modalities, and the yoga intervention and will be appointed to instruct the course. The purpose of the course will be to provide healthcare providers gain knowledge and confidence to implement integrative health in their plans of care to help improve their patients' quality-of-life. The course will cover the integrative approach to patient care and the associated evidence-based modalities, the new patient screening tool, appropriate referral, new charting requirements, linked resources and their location in the EMR, and new discharge protocol including yoga as an intervention. The course will feature a mix of group discussion, interactive lectures, and case-based studies. Following the course, attendees will be provided with digital and easily printable resources that support the integrative healing

approach to use for reference when formulating plans of care and during patient education. The nurse managers in the oncology units will be provided with information regarding the hospital provided education course and will inform nursing staff that they must participate in the in-person or online course over the following eight months and will be financially compensated; emailed reminders of the deadline will be implemented to ensure staff compliance. Other staff will be invited to participate in the course via email and posters regarding the course will be on display on the unit and in staff breakrooms. The staff will be mandated and financially compensated to attend either one of the in-person courses or the online course over an eight-month period prior to the new discharge format being implemented at the end of that year. Participants will take a pre-test and post-test to evaluate the intervention's success and to gain certification at the end of the class.

During the establishment of the curriculum, an electronic medical record (EMR) integration and patient referral eligibility standard will be completed. The Information Technology (IT) department will update the EMR to create easy-to-use imbedded links to evidence-based articles supporting integrative health modalities to reference when providing patient education. In addition, the EMR will have a specific section allocated to a screening to determine if the patient is eligible to receive referral for the education and self-directed yoga program, medical clearance by an eligible physician, and space for provider notes regarding the education, referral, and patient response. The patient screening tool will consist of a variety of questions ranging from severity of symptoms, current use of medications, and the most recent treatment date. The screening will be utilized prior to the patient participating in the yoga modality to ensure patient safety.

The final planning component in the PDSA cycle is to accurately evaluate the educational course intervention (Institute for Healthcare Improvement, 2017). The initial evaluation will be conducted through the pre-test and post-test results from the course; however, further evaluation comes from the results of the breast cancer patients. The over-arching goal for this education is to decrease hospital re-admission related to the adverse side effects of cancer treatment for women diagnosed with breast cancer. The evaluation for this will begin during the planning stage by auditing the charts of breast cancer patients and identifying the number of re-admissions due to adverse side effects from treatment. The priority outcome is to decrease these re-admission statistics by consistently providing patients with education regarding the integrative healing approach and providing the self-directed yoga program to patients to utilize in addition to the pharmacologic interventions to reduce their adverse symptoms and improve their health-related quality-of-life. Once the primary objective of the protocol is established, predictions about the outcome of the intervention can be made, and methods to test the success of this protocol can be determined, and finally, the cycle will move forward to the implementation stage (Institute for Healthcare Improvement, 2017).

Do. The ‘do’ stage within the PDSA framework implements the intervention for observations to be made, data to be collected and analyzed, and problems with the intervention implementation to be noted and adjusted for the future. For the purpose of this thesis, the implementation of an education course on integrative health and new discharge education will be implemented to improve QoL for women with breast cancer and prevent hospital re-admissions due to adverse side effects. The implementation of the following interventions will begin at a single local facility after the committee has successfully developed, edited, and approved the new discharge education format by the hospital board. The education will include a detailed

curriculum, thorough evidence-based resources, and clear instructions about new discharge screening and teaching.

The educational program will be initiated and offered to hospital staff over an eight-month period. This will be a mandatory certification course for all nurses on the oncology unit, but available to all physicians and healthcare providers that have contact with the breast cancer population. After participating in the course and performing the pre- and post-testing requirement, nurses will have passed the course and can begin to utilize the new discharge teaching protocol. Each attendee of the course will receive an online survey after completing the class asking follow-up questions about the quality of the course, the new EMR integration, and the initiation of the new patient education at discharge. The EMR updates will be released following notice by the charge nurses and digital reminders on the desktop computer that the change will occur. The EMR will then include an allocated space within the charts for the patient screening, resources for healthcare providers, and an area for provider discharge notes. After completing the patient screening the EMR will display a suggested task for nurses and physicians to provide referral to the patient to receive integrative health teaching and the yoga intervention resource. Following the EMR updates and intervention implementation, the charts will be audited to observe any changes in the number of hospital re-admissions related to adverse side effects and compared to the prior EMR audit. The comparison will be an important step to receive feedback about the implemented change; however, the initial statistical data will not express true results until months after the unit has adopted the behavior change. Feedback from the committee, nurse educators, nurse managers, physicians, IT department, and other staff is an essential step during the 'do' stage. Following the initial implementation and first wave of statistical data, the committee will reconvene to address the degree of change following

implementation, the initial outcome and feedback, and areas needing adjustment to move forward with implementation in the future.

Evaluation

The ‘study’ and ‘act’ stages of the PDSA cycle will now be discussed with respect to this thesis and best-practice recommendations. The ‘study’ stage of the PDSA framework involves collecting and analyzing data following integration of the proposed intervention. The data is compared to the predications made during the planning stage of the PDSA cycle (Institute for Healthcare Improvement, 2017). The ‘act’ stage includes modifications to the proposed intervention after data has been reflected upon. Finally, an additional PDSA including the adjustments will be implemented (Institute for Healthcare Improvement, 2017).

Study. During the ‘study’ stage the committee will gather the initial data and conduct a detailed analysis of the strengths and limitations. Following the in-depth analysis, the committee will be able to conclude if the data supports the primary objective that healthcare provider education and the new discharge protocol decreases the number of hospital re-admissions for the breast cancer population. Pre- and post-testing, survey responses, and EMR auditing data will be included in the analysis by the committee. EMR audits will be performed again after one full year after the implementation of the education course and discharge protocol. If there is no change or a decrease in hospital re-admissions by the breast cancer population after the first-year audit, the protocol will continue to be implemented. If there is an increase in hospital re-admissions or a significant amount of negative feedback from nurses, physicians, or patients after the first-year audit, changes will be imperative before continuing with integration. The ‘study’ section will be complete after developing a summary of the data analysis and a reflection

on what was learned through the initial implementation of the hospital education curriculum and discharge protocol (Institute for Healthcare Improvement, 2017).

Act. The last stage of the PDSA framework is the ‘act’ stage when changes are implemented into the education curriculum, EMR integration, and discharge protocol based on the observations in the ‘study’ stage (Institute for Healthcare Improvement, 2017). Such changes can include the updates to the allocated EMR section, change in the length of time or materials presented in the course, or the length of time that was allocated for training prior to full integration. Once the final conclusions about the PDSA cycle are made, the committee can identify if the primary objective was met: did the implementation of an education course on integrative health and new discharge education prevent hospital re-admissions due to adverse side effects among the breast cancer population? Based on the final conclusions, future PDSA cycles can be refined and later implemented to other hospital units or oncology centers.

Implementing a Self-Directed Yoga Intervention

As mentioned in the beginning of the chapter an additional PDSA cycle will be conducted for implementation and evaluation for the breast cancer patients utilizing the home yoga program. After patients are screened within the EMR and receive referral, education regarding integrative health and yoga as a specific evidence-based intervention to improve QoL and reduce symptoms related to cancer treatment will be provided during discharge. This thesis has analyzed the most current research and concluded that consistent participation in yoga programs positively benefit breast cancer patients by reducing their symptoms and improving quality-of-life.

Within the discharge packet, a printed resource containing information on integrative modalities, yoga as an evidence-based intervention, and links to yoga YouTube videos to be

utilized at home will be provided. The printed resource will be clear, provide thorough education, and link YouTube videos of yoga practice for the patient to reference in the future. The evidence-based best practice recommendation within this thesis purposes consistent participation in yoga practice of once a week for a minimum of eight weeks will result in positive change for the breast cancer patient. Patients will be encouraged to follow this best practice recommendation in addition to keeping a journal with dates of practice, clarity of the self-directed program, specific yoga videos they practiced, and details regarding secondary symptoms, physical health, and mental health they experienced. This journal will be reviewed at follow up appointments and help their healthcare team evaluate the ease of the program to follow and understand, patient interest and satisfaction, and most importantly the usefulness in improving QoL. In addition, patients will be provided with a survey three months after receiving the discharge resource to give patients the opportunity to provide the committee with feedback. Based on the feedback received from the patient journals, surveys, and EMR audit, the committee will be able to make refinements and continue integration of the self-directed yoga program for the breast cancer population. After multiple refinements and small scale PDSA cycles are conducted and final conclusions about the cycle are made, the committee can identify if the primary objective was met: did the discharge resource and yoga intervention prevent hospital re-admissions due to adverse side effects and improve quality-of-life among the breast cancer population? Based on the final conclusions, future PDSA cycles can be refined and later implemented to other hospital units or oncology centers to reach a larger number of women within the breast cancer population.

Strengths and limitations of the thesis Project

The strength of this thesis is that it included a thorough and broad review of the most current literature pertaining to integrative modalities as interventions that can be utilized to support the breast cancer population through their journey to recovery. The research of integrative approaches to health and wellness is relatively new and the strength of evidence is evolving daily. This thesis evaluates the principles of integrative nursing and the most current research on evidence-based integrative modalities relevant to the treatment of breast cancer. During the literature review, a large body of research that supporting integrative therapies as complimentary treatment options for breast cancer patients was identified. This large body of research not only supports the claim that integrative health and modalities are evolving, but provides hope for breast cancer patients that yoga, mindfulness, and other evidence-based integrative modalities can be used in the plan of care to reduce the likelihood for hospital re-admissions, limit the effects of secondary symptoms, and improve overall quality-of-life. The theoretical implementation of the education curriculum, EMR integration, and self-lead yoga intervention serve as a framework and can be adjusted and adapted for realistic intervention implementation at multiple medical centers and on multiple oncology units. The curriculum, discharge education and self-lead yoga intervention have the ability to be standardized to provide integrative care for breast cancer patients with active support by members of patients' health care teams and medical facilities. The education curriculum and implementation of evidence-based integrative interventions increases the knowledge base of both healthcare providers and breast cancer patients, which can in turn improve the outcomes and self-care of women with breast cancer.

Due to the nature of this relatively new topic, this thesis is limited by the level of evidence of the research. All of the research studies included women as their patient population

which limits the strength of evidence and applicability to men with breast cancer. In addition, the research studies within this thesis and review of literature all concluded that yoga was a safe and effective integrative intervention in improving QoL for breast cancer patients when compared to no intervention; however, further research is needed to develop a detailed yoga regimen needed to implement change. Also, further research is needed to evaluate what specific secondary symptoms are directly affected by the intervention. The research studies regarding mindfulness within this review of literature all concluded that mindfulness is a safe and potentially beneficial integrative intervention in improving QoL for breast cancer patients when compared to no intervention. At this time, mindfulness is an evidence-informed intervention rather than evidence-based. Finally, the proposed education curriculum, discharge education, and self-lead yoga intervention would likely be a costly, lengthy, and challenging process to implement. There may be difficulty allocating funding and forming a committee to implement the proposed interventions.

Summary

The purpose of this thesis was to develop best practice recommendations in integrative modalities for breast cancer patients in order to improve their quality-of-life. The current research indicates a need for integrative interventions to be utilized in the treatment process and reduce symptoms related to invasive cancer treatment for women with breast cancer. Current treatment options for breast cancer are invasive and contribute adverse effects that decrease their mental and physical health as well as increase financial burden and hospital re-admissions. This thesis compiles research that supports yoga as an evidence-based intervention and mindfulness as an evidence-informed intervention to increase self-care and limit the side effects secondary to treatment, which can in turn, improve the QoL for the breast cancer patient population.

Current literature supports educating healthcare providers, patients, and their family members on integrative modalities to promote knowledge on the topic as well as implementing evidence-based integrative interventions into the daily routine of patients as treatment for breast cancer. Education curriculum, discharge education, and a self-lead yoga program can be implemented and evaluated through the PDSA cycle framework. The framework provides opportunity for feedback, improvement, and adaptations to be made to fit multiple hospital facilities. Implementing education on integrative health and evidence-based modalities for healthcare providers empowers the providers with knowledge to provide the delivery of whole patient centered care and offer evidence-based interventions that can promote better health outcomes for their patients. Implementing education on integrative health and evidence-based modalities for patients promotes self- to improve QoL. Overall, education and integrative intervention implementation encompasses the principles of integrative nursing and best nursing practice for the treatment of breast cancer.

References:

- American Society of Clinical Oncology (ASCO). (2020) Financial toxicity among breast cancer survivors with health insurance. Retrieved from <https://meetinglibrary.asco.org/record/189432/abstract>
- Bower, J.E., Crosswell, A.D., Stanton, A.L., Crespi, C.M., Winston, D., Arevalo, J., Ma, J., Cole, S.W., & Ganz, P.A. (2015). Mindfulness meditation for younger breast cancer survivors: a randomized controlled trial. *Cancer, 121*(8), 1231-1240. Doi: 10.1002/cncr.29194.
- Centers for Disease Control and Prevention (CDC). (2020). Breast cancer basic information. Retrieved from https://www.cdc.gov/cancer/breast/basic_info/index.htm
- Heydarnejad, M. S., Hassanpour, D. A., & Solati D. K. (2011). Factors affecting quality of life in cancer patients undergoing chemotherapy. *Afr Health Sci, 11*(2):266–270.
- Institute for Healthcare Improvement. (2017). Science of improvement: Testing changes. Retrieved from <http://www.ihi.org/resources/Pages/HowtoImprove/ScienceofImprovementTestingChanges.aspx>
- Jong, M.C., Boers, I., Schouten van der Velden, A.P., Meij, S.V., Göker, E., Timmer-Bonte, A. N.J.H., van Wietmarschen, H. A. (2018). A Randomized Study of Yoga for Fatigue and Quality of Life in Women with Breast Cancer Undergoing (Neo) Adjuvant Chemotherapy. *J Altern Complement Med. 24*(9-10):942-953. doi: 10.1089/acm.2018.0191.

- Komatsu, H., Yagasaki, K., Yamauchi, H., Yamauchi, T., & Takebayashi, T. (2016). A self-directed home yoga programme for women with breast cancer during chemotherapy: a feasible study. *Int J Nurs Pract*, 22(3): 258-66 doi: 10.1111.
- Mariotto, A.B., Yabroff, K.R., Shao, Y., Feuer, E.J., Brown, M.L. (2011). Projections of the cost of cancer care in the United States: 2010-2020. *J Natl Cancer Inst*. 19;103(2):117-28. doi: 10.1093/jnci/djq495.
- Mayo Clinic (2019). Breast cancer. Retrieved from <https://www.mayoclinic.org/diseases-conditions/breast-cancer/symptoms-causes/syc-20352470>
- McCance, K., & Huether, S. (2014). *Pathophysiology: the biological basis for disease in adults and children* (7th edition). Philadelphia: Elsevier.
- Mindful. (2019). Getting started with mindfulness. Retrieved from <https://www.mindful.org/meditation/mindfulness-getting-started/>
- National Center for Complementary and Integrative Health (2018). Complementary, alternative, or integrative health. Retrieved from <https://nccih.nih.gov/health/integrative-health>
- Shah, R., Rosso, K., & Nathanson, S. D. (2014). Pathogenesis, prevention, diagnosis and treatment of breast cancer. *World journal of clinical oncology*, 5(3), 283–298. doi:10.5306/wjco.v5.i3.283
- Taso, C.J., Lin, H.S., Lin, W.L., Chen, S.M., Huang, W.T., & Chen, S.W. (2014). The effect of yoga exercise on improving depression, anxiety, and fatigue in women with breast cancer: a randomized controlled trial. *J Nurse Res*, 22(3): 155-64 doi: 10.1097.
- Yagli, N.V., and Ulger, O. (2015). The effects of yoga on the quality of life and depression in elderly breast cancer patients. *Complement Ther Clin Pract*, 21(1):7-10 doi: 10.1016

Yun, M.R., Song, M., Jung, K.H., Yu, B.J., Lee, K.J. (2016). The effects of mind subtraction meditation on breast cancer survivors' psychological and spiritual well-being and sleep quality. *Cancer Nurse*, 40(5):377-385. doi: 10.1097.

Zhang, Z., Liu, D., Li, Y., Zhang, Y., Zhang, B., Wang, X., & Wang, G. (2019). Effects of mindfulness-based interventions on quality of life of women with breast cancer: a systematic review. *Comparative effectiveness research*, 8(11), 829-840 doi: 10.2217