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# VALPO

**THE EFFECT OF MINDFULNESS MEDITATION ON EMOTIONAL DISTRESS  
IN ADULT CANCER PATIENTS**

by

**MARIE A. BENOIT**

**EVIDENCE-BASED PRACTICE PROJECT REPORT**

Submitted to the College of Nursing  
of Valparaiso University,  
Valparaiso, Indiana  
in partial fulfillment of the requirements

For the degree of

**DOCTOR OF NURSING PRACTICE**

2015

Student

Date 10/23/2015

  
\_\_\_\_\_  
Date 10-27-15

Advisor

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**2012**

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## **DEDICATION**

To my mom, her courageous battle with cancer has taught me the meaning of strength and perseverance.

## **ACKNOWLEDGMENT**

I would like to thank my faculty advisor Dr. Julie Brandy. Her patience, kindness, encouragement and guidance have resulted in the successful completion of this EBP project. I would like to thank my husband Eddy Benoit for his love and support through these difficult years. Finally I thank the courageous patients who have allowed me the privilege of sharing in their journey.

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## Abstract

Significant advances in cancer treatments have been made over recent decades resulting in state of the art screening and treatment options that have contributed to higher rates of cancer survivorship. However, despite the increase in cancer survivors, a cancer diagnosis continues to be associated with a significant amount of emotional distress and psychological issues that further add to the burden of the disease. The Institute of Medicine (2008), recognizes that a failure to adequately address this problem results in needless suffering and may obstruct quality of care; thereby, leading to a potentially negative impact on the disease course. Among the many interventions available to support patients who are experiencing high levels of emotional burden, mindfulness meditation (MM) has been identified as an effective option. MM is a form of meditation where an individual focuses on moment-to-moment experiences in a nonjudgmental way (Poulin, Mackenzie, Soloway, & Karayolas, 2008). This evidence based practice (EBP) project examined the effects of a six-week MM program on the emotional distress scores of cancer patients living in Eastern Long Island, New York. The MM intervention was modeled after the Mindfulness-Based Stress Reduction (MBSR) program developed by John Kabat-Zinn. Orem's theory of self-care and the Stetler model guided the EBP project. The Brief Symptoms Inventory-18 (BSI-18) and the Distress Thermometer (DT) measured changes in emotional distress. Descriptive statistics and a non-parametric test, the Wilcoxon signed rank test, were used to compare pre and post scores of the BSI-18 and the DT. Post intervention scores on all three of the BSI-18 subscales demonstrated statistically significant reductions in somatization ( $p = .30$ ), depression ( $p = .010$ ), and anxiety ( $p = .006$ ). Post intervention scores on global severity ( $p = .013$ ), which represents the participant's overall level of distress also demonstrated statistically significant reductions. Post interventions scores from the DT ( $p = .121$ ) did not however demonstrate a statistically significant reduction in

distress. Findings suggest that MM can be effective in managing emotional distress in oncology patients, however additional studies using heterogeneous cancer patients and larger samples are needed.

*Keywords:* mindfulness meditation, cancer, emotional distress

## CHAPTER 1

### Introduction

#### Background

It is estimated that 41% of Americans can expect to be given a cancer diagnosis at some point in their lives. Fortunately, substantial advances in detection and treatment of various kinds of cancer have resulted in extended life expectancy, and in some cases complete cure of the disease. Despite these many advances, a cancer diagnosis continues to invoke fear and a myriad of negative emotions. Cancer patients are often faced with life-long physical, psychological and social problems associated with treatment and disease sequelae. Unfortunately, the advances in biomedical care of cancer and high quality care for psychological and social effects of cancer have not been synchronous. Many survivors of cancer report that their providers failed to recognize and adequately address their psychological needs (IOM, 2008).

The National Comprehensive Cancer Network (NCCN), 2014 has published guidelines for identification, intervention and evaluation of emotional distress symptoms in cancer patients. They recommend that all cancer patients be screened for signs and symptoms of distress using the Distress Thermometer (DT). The DT is a self-report tool that measures distress on a 10-point scale. The expected distress symptoms that could be managed by the oncology team include fear, worry, uncertainty about the future, concerns about illness, sadness, anger, feeling a loss of control, insomnia, poor appetite, poor concentration, preoccupation with thoughts of death and effects of treatment. Oncologists, nurses and social workers play a vital role in helping patients deal with these difficult emotions.

There are various options available for providing psychological support to cancer patients and in recent years, nearly all cancer centers provide services often in the form

of support groups and individual counseling. Meditative practices are a modality that have, received attention from patients and have increasingly been a subject of scientific inquiry (Sasser, 2008).

Although meditation has for centuries been a part of religious practice in Western society, the value of Eastern meditation that involves a focus on mindfulness was not embraced until the early 1960s (Kostanski & Hassed, 2008). The scientific community recognized the benefits of meditation in the 1970s through the work of Dr. Herbert Benson (Fontaine, 2005). He was the first in medical science to detail the mind and body connection and produce evidence that meditation is beneficial in dealing with stress. The concept of mindfulness meditation (MM) was introduced several years later by Jon Kabot-Zinn who in 1979 developed the MBSR program at the University of Massachusetts Medical Center. The success of this 30-year program has led to the widespread clinical and psychotherapeutic use of mindfulness and propagated a significant body of research that explores the effectiveness of mindfulness-based approaches among various populations (Kostanski & Hassed, 2008). MBSR is group intervention that consists of multiple components. It is designed assist the participant in developing mindfulness in their lives. It is among the strategies used to operationalize mindfulness in the healthcare setting. The MBSR program involves eight weekly two-hour sessions and a one-day silent retreat. The sessions involve sitting and walking meditation, body scan, and gentle yoga stretches (Mars & Abbey, 2009).

Mindfulness is rooted in Buddhist meditation. However, the practice of mindfulness does not require a person to ascribe to any particular ideology or dogma (Kostanski & Hassed, 2008). It involves keenly observing phenomena without judgment, letting it go and remaining unattached to it. According to Buddhist thought, letting go of attachments reduces the likelihood of suffering since the negative thoughts and emotions that enter the mind are simply allowed to pass through and the mind refocuses

on the present (Hirst, 2003). MM cultivates a way of thinking that brings awareness to habitual reactions that are often the result of past experiences that have not been fully dealt with or processed. By examining these experiences in a mindful way, conditioned responses have less of a powerful hold and in time may disappear altogether (Harvey, 2009). The goal of MM is to promote a sense of comfort and acceptance of the present moment as opposed to focusing on past experiences or the uncertainties of the future. “This intervention focuses on moment to moment awareness of one’s experiences, such as breathing, sound, and physical sensations” (Bauer-Wu et al, 2008, p. 3). MM is helpful in reducing stress and anxiety, combating depression, lowering blood pressure, improving immune function, managing chronic pain, and, overall wellbeing (Poulin, Mackenzie, Soloway, & Karayolas, 2008). MM has been studied in many patient populations, including oncology and the evidence has demonstrated its positive effects on psychological distress.

### **Statement of the problem**

Emotional distress is a significant problem among cancer patients and is defined by the NCCN, 2014 as a multidimensional emotional experience encompassing the psychological, social and spiritual aspects of a patient’s life. It can potentially hinder a patient’s ability to effectively cope with the diagnosis of cancer, as well its physical and treatment demands. “Distress extends along a continuum, ranging from common normal feelings of vulnerability, sadness and fears to problems that can become debilitating such as depression, anxiety, panic, social isolation and existential spiritual crisis” (p. 2). Emotional distress among cancer patients varies with stage of cancer diagnosis, prognosis, and extent of disease sequela. Emotional distress can last up to 10 to 20 years after a cancer diagnosis. Failure to identify and treat distress in cancer patients may result in adverse consequences, which include non-adherence to medical treatment, additional office and emergency room visits, impaired cognition, sleep

disturbance and overall diminished quality of life (IOM, 2008). “Early evaluation and screening for distress leads to early and timely management of psychological distress which in turn improves medical management” (NCCN, 2011, p. 34).

### **Data from the literature supporting the need for the project**

The IOM, in 2008 published an extensive report detailing the significance of psychosocial care in cancer patients and provide recommendations for effectively addressing these issues. Among their recommendations is that psychosocial health care should be included as part of standard cancer care. The research literature further supports the need for addressing psychological distress among cancer patients, as this problem has been investigated among persons with various types of cancer.

Iconomou, Argyriou, Nikolopoulos, Ifanti, and Kalofonos (2008) assessed 265 cancer patients prior to receiving chemotherapy, for anxiety and depression. They used the Hospital Anxiety and Depression Scale (HADS), a 14-item questionnaire that measures anxiety and depression in physically ill patients, and found that 27.2% reported intense anxiety and 19.6% depression. They found that patients who were female, did not have a significant other, and had advanced stages of cancer were more likely to experience clinically emotional distress and that it negatively impacted their quality of life. Previous prevalence studies of psychological distress in cancer patients indicated that 25–30% of all newly diagnosed and recurrent patients experience significantly elevated levels of emotional distress (Derogatis et al., 1983). Zabora, Brintzenhofesoc, Curbow, Hooker, and Piantadosi, (2001) examined 4496 cancer patients with various cancer diagnoses. The researchers used the Brief Symptom Inventory (BSI), a 53-item tool used to measure psychological distress. The measure consists of three global scales and nine subscales. The items are rated on a 5-point Likert scale. Zabora et al (2001) found the overall prevalence of psychological distress was 35.1%. However, the rates varied between cancer diagnosis and prognosis. They

found rates as high as 43% in patients with lung cancer and 29.6% for gynecological cancers. Highest mean score for anxiety and depression were in patients with pancreatic cancer at 56%. Poorer disease prognosis and greater diseases burden was associated with increased emotional distress.

There is strong evidence that support that emotional distress in the oncology patient population is a significant problem. This EBP projects seeks to address this problem through the implementation of a mindfulness meditation program.

### **Data from the clinical agency supporting the need for the project**

The town of Southampton is located on the southern fork of Long Island in Suffolk county New York. Its population is a little over fifty-five thousand residents. The major hospitals that service this area and provide cancer treatments are Southampton Hospital, Peconic Bay Medical Center and Stony Brook University Hospital. Although all these institutions provide support services for their oncology patients, none offered a mindfulness-based intervention specifically geared for the oncology patient population.

### **Purpose of the EBP project**

The purpose of this proposed Evidence based practice (EBP) project was to examine the effect of brief MM training on the emotional distress scores of oncology patients. The training is designed to help the participants cultivate mindfulness in their daily lives and learn techniques that will help them manage the emotional distress associated with their cancer diagnosis.

### **Identify the compelling clinical question.**

Is MM an effective intervention for relieving symptoms of emotional distress in oncology patients?

**PICOT format.** In patients with cancer, what is the effect of a six-week MM program on emotional distress?



**Significance of the project**

Emotional distress is a problem that affects a significant number of cancer patients. It can have very debilitating effects on patients both physically and emotionally and diminish their quality of life. MM is a safe and easy intervention with a substantial body of evidence that supports its efficacy in decreasing emotionally distressing states among various oncology patients.

## CHAPTER 2

### THEORETICAL FRAMEWORK AND REVIEW OF LITERATURE

This chapter will provide a review of the two theoretical underpinnings that guided this EBP project. Research literature covering the effects of MM on the psychological health of persons diagnosed with cancer was reviewed, appraised and applied to the clinical question, in patients with cancer, what is the effect of a six-week mindfulness meditation program on emotional distress?

#### **Orem Theoretical Framework**

The theoretical underpinnings of this study are rooted in the theory of self-care. The theory of self-care is one part of Orem's general theory of nursing entitled Self-care Deficit Theory of Nursing. There are three theories within this theory of nursing: (a) theory of self-care, (b) theory of self-care deficit and (c) theory of nursing systems. For the purposes of this project the focus was on self-care, since the goal is to teach oncology patients to manage their emotional distress by learning the techniques of MM and cultivating mindfulness as part of daily living (Orem, 1985).

**Description of Orem's Theory of Self-care.** The central idea of the Self-care theory lies in the meaning of self-care. Orem, (2001), describes self-care as a "human regulatory function that individuals must, with deliberation, perform for themselves or have performed for them" (p. 143). The functions that Orem refers to are the basic activities necessary to sustain life and maintain physiological and psychological integrity, development and well being (Orem, 2001). The theory delineates these functions, as including, maintaining adequate intake of air, water, food and avoiding hazards that threaten human life and well-being (Orem, 1985). The Self-care agency is described as the ability of an individual to identify a specific need, and decide to meet that particular need. An individual's ability to perform self-care is influenced by 10 factors:

- Awareness of the self-care agent, external and internal factors affecting self-care
- Energy to initiate and maintain the self-care activity.
- The ability to endure the physical demands required to perform the self-care activity.
- Comprehension of the self-care activity.
- Motivation to undertake the self-care.
- Decision-making and ability to translate decisions to action.
- Ability to acquire knowledge of the self-care activity and implement it.
- Cognitive, perceptual, manipulative, communication, and interpersonal abilities required to accomplish the self-care activity.
- Organization skills needed to achieve the self-care activity.
- Consistency to incorporate the self-care activity into daily life ([www.tabers.com](http://www.tabers.com)).

A person's ability to perform self-care activities depends on a number of internal and external factors. These factors include age, stage of development; health state; sociocultural context; health care system factors; family system factors; patterns of living including activities regularly engaged in; environmental factors; the availability and adequacy of resources. Therapeutic self-care demands are the actions necessary to meet three self-care requirements: These include universal self-care, developmental self-care, health deviation self-care (Orem, 2001).

**Application of the Theory of Self-Care to EBP Project.** In this EBP project, the practice of MM represents the self-care activity. The oncology patients enrolled in the MBSR class will be instructed to engage in mindfulness-based activities independently at home. Daily repetition of MM will help the participants to cultivate mindfulness as part of everyday life. Consequently, they will be better equipped to confront and manage the therapeutic self-care demands associated with living with cancer. Self-care demands in

this project were identified as emotional distress manifested in the form of anxiety, stress, sadness, fear, and emotional pain. The self-care agency is the decision to practice MM as means to improve the emotional distress symptoms associated with a cancer diagnosis. The role of the nurse is to support and educate. While the patient is able to meet the requirements of self-care through MM, there is a need for training in the practice and cultivation of mindfulness as a way of life. The nurse will facilitate learning by offering training in the techniques of MM as well as providing guidance to help manage the potential challenges that may be confronted with the practice (Orem, 1985).

### **Identify Strengths and Limitations of the Theoretical Framework for EBP Project**

Orem's theory of self-care provides a basis for nursing intervention with regard to the implementation of this EBP in clinical practice. The theory delineates the various components of the project, identifying the role of the clinician, patient and the intervention and frames the project within a nursing context. The theory was somewhat difficult to navigate due to its large scope, as there are three distinct theories within the one theory of Self-care deficit. I overcame this challenge by focusing solely on the Theory of self-care, which was best suited for the EBP project.

### **Stetler Model**

The Stetler model was used as a framework to guide this EBP project. The Stetler model provides a step-by-step method to guide practitioners in the integration of research into clinical practice (Schmidt & Brown, 2009). It was first developed in 1976 and has undergone refinement in 1994 and 2001. The model emphasizes the role of critical thinking and its steps are designed to help the practitioner utilize research findings safely and effectively (Stetler, 2001).

**Description of the Stetler model.** The Stetler model is designed prescriptively and is comprised of five phases (Schmidt & Brown, 2009). The phases include preparation, validation, comparative evaluation/decision making, translation/application

and evaluation (Stetler, 2001). These phases facilitate the navigation and the organization of the research literature.

The first phase is the preparation phase. This phase focuses on clarifying the purpose the research evidence and directs the user to consider the potential significance of external and internal factors (Stetler, 2001). It directs the user to identify stakeholders, relevant issues and define outcome measures (Schmidt & Brown, 2009).

In the second phase, the validation phase, analysis of evidence is performed to determine credibility and if there is sufficient evidence to support its implementation into clinical practice. The evidence is summarized in a grid and rated according to the level of evidence (Schmidt & Brown, 2009).

In phase three, the comparative evaluation/decision making phase, the practitioner synthesizes the accumulated research findings, organizes and identifies the similarities and difference among them. Essentially, it is in this phase that the practitioner makes the determination if the findings are desirable and feasible to apply in clinical practice (Stetler, 2001). If the research literature sufficiently answers the clinical question, and demonstrates that the project is amendable to the clinical area, the practitioner progresses to the fourth phase, which is the translation and application phase.

In phase four the practitioner must formulate and implement a plan to translate the research findings into practice (Stetler, 2001). The practitioner determines how the evidence will be used and must consider operational details with regard to the distribution of responsibilities, timing and the methods that will be applied to implement the change (Stetler, 2001). The practitioner must also determine how the success of the change will be measured (Schmidt & Brown, 2009). Finally, the fifth phase of the model is the evaluation phase. In the evaluation phase the practitioner assesses the outcome of the change (Stetler, 2001).

**Application of Stetler Model to EBP Project.** In the preparation for this EBP project the DNP student identified a need in the oncology patient population. Significant emotional distress was consistently observed in the clinical practice setting. While resources are available to address the issues of distress in this population the DNP student questioned if MM would be a viable option to address this problem in clinical practice. The stakeholders were identified as the patients, and MBSR instructor. The anticipated outcome of this intervention was to decrease the level of distress in the oncology patients that would participate in the intervention. Upon completing the first step of the process the DNP student progressed to the validation phase.

In this phase the research literature was searched and critiqued. Articles were rated using rating system for Hierarchy of Evidence provided by Melnyk and Fineout-Overholt (2005) (See table). The use of MM in the oncology population was overwhelmingly supported by the research literature, hence the DNP student confidently moved to phase three, comparative evaluation and decision-making.

In this phase the DNP student met with Alecia Francis an oncology NP at the Stony Brook University hospital to discuss the feasibility and desirability of a MM class for oncology patients in the eastern region of Suffolk County. There were no such classes being offered in the cancer center at Stony Brook. Mrs. Francis enthusiastically agreed to refer patients to the project. The DNP student also met with Nina Thorne, an MBSR instructor. The DNP searched via the Internet and local cancer centers in the area but was unable to find a mindfulness-based program offered for oncology patients. It was evident that the need for such an intervention was needed in the area.

In the translation/application, the DNP student implemented the project based on the research literature. The MM class was modified version of MBSR program. The modifications were made on the recommendation of oncology social workers and were consistent with what was found in the literature. The MM classes were conducted for six

weeks, from July 1 to August 5. The participants met weekly on Tuesday evenings for two hours. The classes included both a didactic and experiential component. The theoretical portion explored the concepts of mindfulness, stress, meditation, cognition, emotions, yoga and the body-mind connection. The experiential component included gentle yoga stretches, guided mindfulness meditation, body scan, and home practice. The DNP student and the MBRS instructor facilitated the classes. The classes were held as MBSR-Long Island in Speonk.

In the fifth phase the DNP evaluated the intervention using the Distress Thermometer and the BSI-18. Emotional distress was evaluated prior to and upon completion of the project.

#### **Strengths and limitations of the Stetler model for EBP project.**

The Stetler model provides a stepwise approach to critical assessment and utilization of research findings. It is specifically designed to be practitioner oriented and acts as a guide towards the safe and effective translation of research into EBP. The model assisted in identifying factors that may impact the success of the project and its prescriptive design contributed to its ease of use. In addition, it provides alternative actions when desired outcomes are not achieved and the research does not support the clinical question. A limitation to the use of the Stetler model would be the additional work involved in creating a chart to represent the evidence.

#### **Literature search**

A literature review was done to appraise the best evidence on MM and its effects on emotion distress in the oncology patient population. The electronic databases used to search for relevant evidence were CINAHL, MEDLINE, Proquest Nursing and Allied Health Source, PsycARTICLES, the Cochrane Library and the Joanna Briggs Institute through JBI COnNECT. The key terms used to search the databases were mindfulness meditation, mindfulness-based stress reduction, cancer, and distress. Inclusion criteria

were articles published between 2000 and 2013, and written in the English language. Abstracts were reviewed and full text articles were obtained if they addressed the clinical question. The research librarian was consulted to ascertain that the literature search reached saturation.

CINAHL was searched using the keywords mindfulness meditation and cancer yielding 12 search results of which only four were relevant to the clinical question. When the search terms MBRS and cancer it resulted in 26 articles, a total of ten articles were relevant to EBP project of which three were duplicates. A MEDLINE search of the search terms mindfulness based stress reduction and cancer produced 43 search results 12 were relevant to the project of which six were duplications. Proquest Nursing and Allied Health Source with mindfulness meditation, oncology and distress yielded 126 hits 8 articles related to the clinical questions. Cochrane library was searched using the search term MBRS yielded seven search results with only one relevant to the clinical question (Table 2).

**Expert opinions.** Jon Kabat-Zinn is the founder of the Center for mindfulness in medicine, healthcare and society at the University of Massachusetts medical school. He developed the Mindfulness-based stress reduction program upon which a significant number of the current literature on mindfulness and the reduction of psychological distress symptoms are modeled after. Through his MBSR program thousands of individuals have found relief from psychological disorder such as anxiety, depression, and emotional distress. He has authored and coauthored several books and articles on the topic mindfulness in various areas of life. He posits that through the cultivation and practice of mindfulness people are able to gain more profound understanding of themselves and discover inner resources that lead to healing, growth, and transformation throughout one's life time (Kabat-Zinn, 1990).



Linda Carlson is a clinical psychologist at the Tom Baker cancer center and an adjunct associate professor at the University of Calgary in Canada. Carlson has done extensive research in the area of mindfulness in the oncology patient population. She has authored and coauthored many research articles and is the coauthor of a book entitled *Mindfulness-based cancer recovery: A step-by-step MBSR approach to help you cope with treatment and reclaim your life*. In this work she provides prescriptive approach to MBSR that is based on her own practice of the technique (Linden, 2011).

**Description of levels of evidence.** The research studies appraised for this EBP project was rated according to the rating system for the hierarchy of evidence as outlined in Melynk & Fineout-Overholt (2005). The rating system ranges from level one to level seven with level one representing the strongest evidence on a given topic. Level I is evidence from a systematic review or meta-analysis of all relevant randomized controlled trials (RCTs) or evidence-based clinical practice guidelines based on systematic reviews of RCTs. Evidence that is retrieved from at least a single RCT is rated as level II. Well-designed non-randomized control trials are rated as level III. A Level IV rating is given to evidence that is obtained from well-designed case-control and cohort studies. Level V is reserved for evidence obtained from systematic reviews of descriptive and qualitative studies. Evidence from a single descriptive or qualitative study is rated as a level VI and authoritative opinions and reports from expert committees are rated as level VII (Melynk & Fineout-Overholt, 2005).

Table 2.1 *Literature Search Findings*

Database	Keywords	Search Results	Relevant Articles	Duplicates
CINAHL	MM and Cancer	12	4	0
CINAHL	MBSR and Cancer	26	10	0
MEDLINE	MBRS and Cancer	43	12	9
Proquest Nursing and Allied Health	MM, oncology and distress	126	8	6
Cochrane Library	MBSR	3	3	2

Smith, Richardson, Hoffman and Pilkington, (2005) conducted a systematic review to evaluate the current evidence relating to effectiveness of MBSR in cancer care. The review identified the databases and keywords utilized in the search process. Inclusion criteria for this review required that the participants in the studies have a primary diagnosis of cancer, and had undergone a mindfulness based intervention which included either MBSR, MM alone or MM as a component of a modified psychological intervention. The types of outcomes included physical function, psychological and physical measures such as tumor markers and blood tests. All research studies that identified the outcome measures were chosen, and no restriction on language was imposed. Two independent reviewers appraised and assessed the methodological quality of all relevant studies. They used a standardized data extraction and critical appraisal form, which was adapted from a template published by the Centre for reviews and dissemination. Discussion or a third reviewer resolved disagreements. A nurse with training in MBSR was consulted and provided insight with regard to the interventions' appropriateness, as well as clinical and practical implications.

The researchers identified a total of ten studies that met the inclusion criteria. Three randomized controlled trials and seven uncontrolled clinical trials. At the time of publication there were no systematic reviews involving the oncology population and no qualitative studies were found. The results of the studies were not combined due to the variations in both interventions and outcome measures.

A number of methodological limitations were identified including (1) small sample sizes, (2) inadequate description of randomization of participants, (3) failure to appropriately report methods used in sampling and recruitment, (4) failure to identify reasons for participants lost to follow-up and compliance rates, (5) accompanying interventions not reported, (6) inadequate delineation of the specific MBSR intervention.

The tools used to measure the outcomes were reliable and valid in cancer patients, these tools included the Profile of Mood States (POMS) a 65-item scale that measures mood states, Symptoms of Stress Inventory (SOSI) is a 42 item scale the measures responses to stress, Short Form 36 (SF-36) Symptoms Check List (SCL-90-R) a measure of overall distress, COPE inventory is a tool that measures coping response, State Trait Anxiety Inventory (STAI) used to measure anxiety, Functional Assessment of Chronic Illness Therapy (FACIT) measure quality of life, European Organization for Research and Treatment of Cancer Quality of Life Questionnaire-C 30 (EORTC QLQ-30) which is a 30-item questionnaire that also measures quality of life, and, Hospital Anxiety and Depression Scale (HADS). Both controlled and uncontrolled studies reported improvements in mood, sleep, and stress reduction. The researchers concluded that MBSR has the potential to be used in the clinical setting as a self-administered intervention for cancer patients. However, due to methodological limitations of the relevant studies, recommendations for implementation into clinical nursing practice could not be made.

In a meta-analysis, Ledesma and Kumano (2008) evaluated the effectiveness MBSR on the psychological and physical health status of heterogeneous cancer patients. The criteria for inclusion into the meta analysis was (1) MBSR as a psychosocial intervention over 6-15 weeks, (2) oncology patients of any age, gender or stage of cancer, (3) have at least one quantitative measure, (4) written in the English language and (5) published before 2007. Search engines and terms were identified. A total of ten studies, four randomized controlled and six observational studies were included in the meta-analysis. The authors cited that the studies that were included, suffered from small sample sizes, a failure to provide information regarding therapist training, patient compliance and cancer staging post intervention.

Physical and mental health status measures were divided into subgroups. Examples of variables measured under physical health status included immune function, dietary fat, as well as cardiopulmonary and neurologic symptoms. Anxiety, depression, stress and quality of life were included under the mental health subgroup. The researchers only included data from scales that were standardized and validated and only data taken immediately post intervention were used to calculate the effect size. The authors calculated the initial effect size using the difference between the means and “dividing the difference by their pooled standard deviations” (p. 572). The final effect size was calculated in the RCT, using the differences between the post and pretreatment effect sizes per each health measure per study group. Correlation coefficients could not be determined for all scales in the analysis of the observational studies. Therefore,  $r=0.7$  was used as the correlation between scores.

The authors found that in both controlled and observational studies the effect size for mental health was  $d=0.48$  and for physical health the effect size was  $d=0.18$ . The results demonstrate that mindfulness based approaches have a positive effect on psychological disturbances associated with cancer, including anxiety, stress, fatigue, mood and quality of life. The authors concede that the wide variations in the implementation of the MBSR program may have confounded the results. However, their data is consistent with Grossman, Niemann, Schmidt and Walach, 's (2004) meta-analysis that found mean effect sizes of  $d=0.54$  and  $0.50$  in similar study designs with heterogeneous patient populations.

Shennan, Payne and Fenlon (2010) conducted a systematic review of mindfulness interventions in cancer care. The authors searched a wide range of both published and unpublished literature with the assistance of a research librarian. All databases and search terms were identified. The authors did not report whether the studies were reviewed independently nor how conflicts were resolved. Studies included

in the review were published in English between 2000 and 2009, consisted of adults of any age, race, and gender with a primary diagnosis of cancer. Studies that involved mixed interventions were excluded and only studies where mindfulness meditation was at the center of the intervention was included. The authors identified 501 papers 422 did not meet inclusion criteria. Further exclusions were made for studies that had been included in previous reviews or meta-analysis and those written prior to 2007. At the end of this process 13 papers were included in the review consisting of three RCT, one non-randomized controlled trial, five pre and post-test designs and two qualitative studies. The mindfulness interventions evaluated included, standard and modified MBSR, Mindfulness-based cognitive therapy, brief mindfulness training and psycho-educational study with a focus on mindfulness.

Shennan et al. (2010) evaluated contact times with the facilitator of the mindfulness interventions and found that the recommended daily practice varied significantly across studies. However the variations in contact time did not correlate with the benefits gained. Participants saw improvement post intervention despite compliance with class time or home practice. Facilitator training in mindfulness was not always clear. Studies where training was identified included trained formally in MBSR or MBCT, mindfulness retreats, and yoga. The authors found that research is lacking with regard to training requirements of mindfulness facilitators.

The majority of the mindfulness interventions were conducted in outpatient cancer centers, with one study that took place in a hematology oncology unit in an acute care hospital and one study's setting was a hospice facility. The studies included in this review measured the effects of mindfulness interventions on quality of life, well-being, psychological and physical symptoms. Several methodological limitations were identified which included (1) participants in the studies did not mirror the general oncology population, (2) small sample sizes (3) lack of control and (4) lack of follow up.

Despite these methodological limitations Shennan et al. (2010) found that the quantitative research literature demonstrates that mindfulness interventions provide significant improvements of psychological and physical symptoms among cancer patients. However, no significant benefits are shown in quality of life and well-being.

Piet, Wurtzen, and Zachariae (2012) conducted a systematic review and meta-analysis of the effects of mindfulness based therapies (MBT) on anxiety and depression in adult cancer patient and survivors. The Meta-Analysis Reporting standard was used to guide this analysis. Databases and search terms were identified. One author independently conducted the search and a seconded author verified the retrieval process. Discussion was used to resolve disagreements. The authors identified a total of 670 studies but only 22 met inclusion criteria, 13 nonrandomized studies and nine RCT. The studies evaluated the effects of either MBSR or MBCT on anxiety or depression in cancer patients. Sample sizes were varied from 12 to 267 among the studies there were a total of 1,403 participants of mixed cancer diagnoses. The majority of the participants (77%) had a diagnosis of breast cancer, mean age was 55 years, and 85% were women. The MBT ranged from 6-8 sessions in length. In the studies that tracked adherence to the Mindfulness based therapy 81 % of the participants were found to have participated in at least 75 % of all the sessions.

A coding system was developed by one of the authors and data was coded according to (1) participant's characteristics, (age, sex, type and stage of cancer as well as the specific treatment) (2) group characteristics, which included the type of mindfulness based approach, the number of sessions and adherence to the prescribed modality (3) type of outcome measures (levels of anxiety, depression and measurement of mindfulness) (4) methodological qualities. The authors calculated effect sizes for nonrandomized control trial and randomized controlled trials separately. Effect sizes were then combined using the random-effects model. The effect sizes from

nonrandomized studies were based on differences between pre and post outcome measures. Mean pre and post treatment scores were used to derive effect sizes from randomized control trials for both treatment and control groups. The authors used the inverse variance random effects model to pool effect sizes in order to obtain summary statistics. The effect size parameters for each study were regarded as random samples from larger population, which permits generalization outside the observed studies. Funnel plots and fail-safe  $N$  statistics were applied in order to identify potential publication bias  $Q$  and  $I^2$  statistics were used to test for heterogeneity.

Piet et al. (2012) found in the nonrandomized studies pooled pre and post within group effect sizes demonstrated significance for the reduction of anxiety (Hedge's  $g=0.60$ ) and depression (Hedge's  $g=0.42$ ). Similar results were reported in the RCTs, pooled controlled effect sizes were significant for reduction in symptoms of both anxiety (Hedge's  $g=0.37$ ) and depression (Hedge's  $g=0.44$ ) In the studies where mindfulness was measured, small to moderate effect sizes were reported. However, the authors cited a number of limitation of the study, which included (1) the inclusion criteria and statistical assumptions (2) the over presentation of women with breast cancer which limited the study's authority to generalize to male cancer patients (3) the variability of stage and time of cancer diagnosis within and between studies, resulting in the inability of the authors to draw conclusions with regard to the differential effects of MBT with reference to these characteristics. (4) the variation of tools used to measure anxiety and depression across studies. (5) the lack of study participants systematically diagnosed with mood or anxiety disorders and (6) the fact that many of the studies suffered from poor methodological quality. However, the authors concluded that there is positive evidence to support the use of MBT to treat anxiety and depression in survivors of and those diagnosed with cancer.



Musial, Bussing, Heusser, Choi and Ostermann (2011) conducted a meta-analysis which investigated the effects of MBSR on quality of life, mood, and distress in oncology patients. This work also included a review and critical appraisal of all the available evidence on MBSR in the care of oncology patients. Among the authors, two independently reviewed and assessed the trials for inclusion. The criteria for inclusion into this review were (1) reviews and published studies of MBSR in cancer involving observational and cohort studies, clinical trials, multicenter studies, randomized controlled trials, systematic reviews, and meta-analyses (2) The studies had to include a structured MBSR program of at least six weeks in length, (3) the participants had to have a diagnosis of cancer, and (4) the studies had to include at least one outcome measure associated with quality of life, mood or distress. The authors excluded commentaries, opinions, program descriptions, theoretical considerations and published works not written in either English or German. The databases and search terms were identified.

The meta-analysis included five systematic reviews and one meta-analysis. Pre and post MBSR effects on quality of life were obtained. Effect sizes and their standard deviations were calculated. Standard chi-square tests and the  $I^2$  coefficients were used to assess heterogeneity between trials. Among the six studies the total number of patients included was 248 with an overall effect size was 0.29 with a 95% confidence interval 0.17-0.40;  $p < 0.00005$ . Heterogeneity was at 23.4 % which means that variability among the studies with regard to the effect of MBSR was low.

A total of 19 studies were included in the systematic review, five RCTs, four non-RCTs, and ten observational studies. There a total of 411 patients in ten of the studies which had an overall effect size of 0.42 for mood, 95 % confidence interval 0.26-0.58;  $p < 0.0001$ . Fifteen studies with a total of 587 patients had a moderate effect size of 0.58 for emotional distress.

The authors found that the MBSR resulted in low effect sizes for quality of life, effect sizes for mood was weak and moderate for emotional distress. These results were comparable to those seen in Ledesma and Kuamo (2009).

Limitations of the this review included the lack of data regarding cancer staging, as it would be important to know what stages of disease that MBSR may more helpful. Women with breast cancer were largely over represented in the studies, and there was not enough information on the treatment status of the participants. Furthermore, there was no information on the participant's adherence to the intervention. The authors concluded that the evidence supports MBSR improves mood and emotional distress in patients with cancer. However, MBSR does appear to have an effect on the physical symptoms of cancer patients. Musial et al. (2011) cite the need for more high quality RCTs, larger sample sizes, identification of patient's psychological profile and longer follow up results.

In a randomized wait-list controlled clinical trial conducted in Canada, Speca, Carlson, Goodey and Angen (2000) evaluated the effects of a MBSR program on mood and stress of oncology patients in an outpatient setting. The researchers used a convenience sample of 90 patients with cancers of various types and stages. The cancer diagnoses included solid tumors, skin and hematologic malignancies, with breast cancer being the largest type of cancer represented. The subject's ages ranged from 27 to 75 having an average age of 51 years. There were 86 women and 23 men. They were generally well educated having a mean of 15 years of formal education. The subjects were then randomized using the table of random numbers into either the treatment group or the wait-list group. The treatment group participated in a seven-week mindfulness stress reduction program modeled after Jon Kabat-Zin's MBSR program. The intervention was modified to fit the clinical context of the center and was based on feedback received from an earlier pilot program. The subjects met weekly for 90-minute

sessions, which included both a didactic and experiential component. The theoretical portion explored the concepts of mindfulness, relaxation, meditation, cognition, emotions, yoga and the body-mind connection. The experiential component included gentle yoga stretches, guided mindfulness meditation, body scan, and home meditation practices. The waitlisted group received no intervention but was given the opportunity to participate in the same mindfulness program after the study was completed.

The POMS and SOSI assessment tools were used to measure mood and stress pre and post intervention respectively, in both treatment and control group. The POMS subscales measures depression, anger, vigor, confusion, anxiety, fatigue and a total mood disturbance score. The researchers used one-way ANOVA to analyze the data and total scores from the POMS and SOSI measures. The researchers calculated the change score using the difference of the scores before and after the intervention. A negative change score is indicative of a decrease in mood disturbances and a positive change score suggests greater mood disturbances post intervention. Change scores were assessed using the independent-samples *t* test. The POMS scores post intervention on the subscales for Anxiety ( $t(88)=-3.73, p < .001$ ), Depression ( $t(88) = -3.02, p < .01$ ), Anger ( $t(88) = -3.10, p < .01$ ), Vigor ( $t(88) = 2.96, p < .01$ ) and confusion ( $t(88) -2.22, p < .05$ ) and the total mood disturbance scores was ( $t(88)=-3.80, p < .01$ ) Post intervention change scores demonstrated significantly more change in the direction of reduced mood disturbances in the treatment group. The treatment group had a 65% reduction in Total Mood Disturbance whereas the control group saw only a 12% reduction.

The SOSI subscales measured cardiopulmonary symptoms of stress, gastrointestinal symptoms, habitual behavior patterns, depression, emotional irritability, cognitive disorganization and provide a total stress score. The treatment group had a statistically significant reduction of total stress symptoms of 37 % but the control group

only had an 11.1% reduction. The study also found a significant correlation between attendance, home practice and decrease in stress. The correlation between the number of sessions that a subject attended and reduction of stress symptoms was ( $r=0.30$ ,  $p<.05$ ) and correlation between time spent in meditation and reduction of stress symptoms trended toward significance ( $r=-0.253$ ,  $p<.10$ ) The subjects that attended the most sessions and practiced regularly at home had better outcomes than those who did not. The results from this study provide evidence that a MBSR program can positively affect a wide range of stress related symptoms and mood disturbances in cancer patients. In a follow up study, Carlson, Ursuliak, Goodey, Angen, and Speca, (2001) assessed the same group of participants and found that the improvements in SOSI and POMS scores seen immediately post the mindfulness intervention were maintained after six months.

Lengache, Johnson-Mallard, Post-White, Moscoso, Jacobsen, Klein, and Kip, (2009) conducted a two armed RCT of breast cancer survivors to evaluate the effects of a six week MBSR program on psychological and physical status and the correlation between its positive outcomes and the degree of adherence to the program. The study consisted of 84 women, 39% were under the age of 55, 60% were 55 year or older and 78% of the women had some college or held a college or professional degree. They all had a history of stage 0-III breast cancer that was treated with chemotherapy, radiation and/or surgery. Inclusion into the study required that subjects be (1) 21 year or old (2) previous diagnosis of stage 0-III breast cancer, (3) completed treatment for breast within 18 months, and (4) able to read and speak English at an eighth grade level. Exclusion from the study included (1) stage IV breast cancer, (2) prophylactic mastectomy prior to treatment of breast cancer, (3) Severe psychiatric disorder, and (4) patients undergoing treatment for relapse of breast cancer. Subjects were randomized into an intervention or usual care group. The usual care group were placed on a waiting list and given the

option to complete the MBSR program after six weeks. Similar to the study conducted by Speca et al (2000) the MBSR program was modified lasting six weeks rather than the standard eight weeks and excluded an all-day silent retreat. The subjects were given a training manual with weekly objectives, exercises, program content and four audiotapes for home practice.

Lengache et al, (2009) measured the psychological and quality of life statuses, of these women before and after the completion of the 6- week MBSR program. The instruments used to measure psychological status were Concerns about Recurrence Scale, State-Trait Anxiety Inventory, Center for Epidemiological Studies Depression Scale, Life Orientation Test, and the Perceived Stress Scale (PSS). Quality of life was measured using the Medical Outcomes Studies Short form General Health Survey.

The treatment group demonstrated significantly lower scores on the Concerns about Recurrence Scale than the women in the usual care group. They also had lower adjusted mean levels of depression, anxiety as well as increased energy levels and improved physical functioning. The subjects that spent more time in the practice of mindfulness tended to have lower levels of perceived stress and improvements in the areas of physical function, pain and emotional well-being. Lengacher et al (2009) concluded that a six-week MBSR program improved both psychological status and quality of life as compared to the usual care in patients with breast cancer.

In a RCT Branstrom, Kevillemo, Brandberg and Moskowitz (2010) examined the effects of a MBSR program on psychological well being and perceived stress on patients with various cancer diagnoses. The sample consisted of 70 women and one man diagnosed within the last one to two years but who were not currently undergoing chemotherapy or radiation treatments. The diagnoses included breast, gynecological, lymphatic, pancreatic and neck cancers. The subjects were randomized into either the intervention group or the control group. The intervention was a modified eight-week

MBSR program that included weekly two-hour sessions consisting of both experiential and group exercises. The subjects in the control group were placed on waiting list and given the opportunity to participate in the MBSR program after six months.

Branstrom et al (2010) used a number of psychosocial outcome measures pre and post the mindfulness intervention. These measures include the five-facet mindfulness questionnaire (FFMQ), which is an instrument that measures mindfulness, the PSS which measures the perception of stressful experiences over 30 days, and the Hospital Anxiety and Depression scale which measures symptoms of anxiety and depression. Further measures included the Positive States of Mind scale (PSOM) measuring positive emotional and cognitive experiences and the Impact of Events Scale-revised (IES-R) was used to measure symptoms of posttraumatic stress and the impact of stressful life event over one week.

The researchers found that the intervention group demonstrated greater reductions in perceived stress, and posttraumatic stress symptoms than the control group. Post intervention scores on the FFMQ was significantly increased in the treatment group than in the control group. Consistent with results from earlier randomized and nonrandomized studies, a reduction in physiological distress and symptoms of stress was shown among the intervention group, further lending support to the utilization of mindfulness among cancer patients, to reduce psychological distress.

In the first study of its kind, Foley, Baillie, Huxter, Price, and Sinclair, (2010) conducted a RCT evaluating the effects of Mindfulness-based cognitive therapy (MBCT) on depression, anxiety, distress and quality of life in oncology patients. MBCT is patterned after the MBSR program, however it differs in its emphasis on cognitive processes.

The authors recruited 115 patients with multiple cancer diagnoses and stages into the study. The age range of the participants was 24-78 years. The average age

was 55.18 years with 77% being women and 42% having breast cancer. More than half of the participants were in the late stages of their disease, stages III or IV. The participants were randomized into either the intervention group or placed on a waitlist. Both groups were assessed pre and post the intervention using various outcome measures. The Hamilton Rating Scale for Depression (HAM-D), a 17-item interview and the Hamilton Anxiety Rating Scale (HAM-A) a 14-item interview was used to measure depression and anxiety respectively. The Depression, Anxiety Stress Scale, short form (DASS) which a self-report assessment measures “depression, physical arousal, psychological tension and agitation” (Foley et al, 2010, p. 75). The Functional Assessment of Cancer Therapy-General (FACT-G) measured quality of life and The Freiburg Mindfulness Inventory (FMI) was used to measure mindfulness.

Similar to the MBSR program, the participant in the intervention group participated in an eight week MBCT program that included weekly two hour sessions, daily home practice and a day long silent retreat. The subjects were given the Jon Kabat-Zinn’s book entitled *Full Catastrophe*, which discusses the major tenants of MBCT and MBSR and a 40-minute meditation recording to help support home practice.

The result of this trial demonstrated significant improvements in symptoms of depression  $F(1, 166)=18.78, p< .001$  and anxiety  $F(1, 1150)=10.25, p=.002$  in the treatment group versus the control group. The average improvement post intervention on the HAM-D was 9.76 points for the intervention group and 4.11 points for the waitlisted group. The post treatment average improvement for the HAM-A was 10 points for the treatment group and 5.7 for the wait-list group. The treatment group had significantly less distress compared to the control as evidenced by a 6.31-point improvement in the DASS versus only .61 improvement seen in the control group. A similar trend was seen in the outcome measure for quality of life, however the scores did not demonstrate statistical significance,  $F(1, 12)=6.70, p=0.11$ . The average

improvement on the FACT-G for the treatment group was above what is considered clinically meaningful of 5.4 points, with an average of 7.18, and 2.80 points for the control. The level of personal mindfulness was also improved in the treatment over the control group. The FMI scores demonstrated a 4.98-point increase over the waitlist group. In summary, the results of this study provide evidence of the effectiveness of MBCT for oncology patients suffering from anxiety, depression, and distress as well the potential to improve quality of life.

Carlson, Speca, Patel, and Goodey, (2003) in an observational study of forty-nine breast cancer and ten prostate cancer patients investigated the relationship between a MBSR program and quality of life, mood states, stress, lymphocyte count and cytokine production.

Inclusion into the study required that the participant be 18 years or older, diagnosed with early stage breast cancer or prostate cancer, with a minimum of three months since surgical intervention. Participants were excluded if they had been treated with chemotherapy, radiation or hormone therapy within the last 3 months, had a DSM-IV Axis I diagnosis, an autoimmune disorder or participated in a MBSR program. There were 59 participants in the sample but 42 completed the pre and post assessments. The average age of the participants was 54 years (no age range provided), with a mean of 14.7 years of formal education.

The MBRS program consisted eight weekly 90-minute group sessions that included didactic, experiential and group process components. Pre and post scores of the following outcome measures were taken, EORTC, POMS, and SOSI. Pre and post blood samples for immune assays were also obtained to measure cytokine production a component of cell mediated immunity and immune cell counts which included T cells, B cells, helper T cells, cytotoxic T cells, Natural Killer (NK) cells and Natural Killer T cells, cytokines interferon gamma (IFN- $\gamma$ ) production, tumor necrosis Factor (TNF). The



researches also collected data on health behaviors that included caffeine and alcohol consumption, exercise, sleep, diet and smoking.

The post intervention outcome measures for quality of life demonstrated greater overall global quality of life as evidenced by significant changes in pre and post scores ( $t = -2.23, p < .05$ ). However, no significant change in POMS scores measuring mood. The participant's pre intervention mood score were low, which is an indication that there were little disturbances in mood among the participants. This may account for the low post intervention POMS scores.

Statistically significant reductions ( $t = 3.23, p = < .01$ ) in stress symptoms was seen in mean SOSI scores. In the SOSI subscales there were significant changes on Depression ( $t = 2.32, p < .005$ ), Anxiety ( $t = 2.70, p = .01$ ), Emotional Irritability ( $t = 1.86, p < .05$ ), Muscle tension ( $t = 2.71, p < .01$ ), Habitual Patterns ( $t = 2.79, p < .01$ ), and Cognitive Disorganization ( $t = 3.26, p < .005$ ). There was no significant correlations between quality of life, overall mood and stress scores and attendance or home practice at the  $p < .01$  level. There was no change in the number of lymphocytes or subtypes, which include NK, T or B cells. There was however a decrease IFN- $\gamma$ . The researchers suggest that this finding may be the result of a decrease in depressive states as IFN- $\gamma$  increases with depression. Improvements were also seen in sleep quality as less than 20% of the participants reported poor sleep post intervention as compared to over 40% pre intervention, however this was not statistically significant. Small improvements in exercise, which increased from four to five times week and caffeine consumption, fell from 18 to 17 times a week.

This study supports previous findings of the effect of MBSR on stress in oncology patients and demonstrates improvements in quality of life, health behaviors and suggests changes in cytokine production.

In a non-randomized study Garland, Carlson, Cook, Lansdell and Speca (2007) compared a MBRS and a healing through creative arts program (HA) on measures of spirituality, posttraumatic growth (PTG), stress and mood disturbances in oncology patients. In this study the authors define PTG as the “experience of discovering or actively searching for benefits or positive implications of the cancer experience and the growth and life change that follow” (Garland et al, 2007, p. 950). Spirituality involves components of faith, connections with people, a Supreme Being or higher power. It also includes elements of faith, purpose and finding meaning.

The outcome measures included the POMS, used to measure mood disturbances, the SOSI for measures of overall stress, the Post-Traumatic Growth Inventory- Revised (PRGI-R) measures a person’s growth after experiencing a traumatic life experience. It consists of a 21-item self-report inventory used to measure positive outcomes born out of traumatic life events. The Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being (FACIT-Sp) measures spirituality in individuals with chronic or life-threatening medical conditions.

The Interventions were MBSR and HA. The MBSR included an eight-week MBSR program modeled after the work of Jon Kabat-Zin. The MBSR program provided weekly 90-minute sessions that involved meditation, group discussions, yoga and one 3-hour silent retreat. The participants were also asked to practice mindfulness and yoga daily for 45 minutes.

The HA program is a six week program consisting of weekly 2 hour sessions that involves journaling, drawing, creative writing, group discussions, body awareness exercises and movement to music. Each session centers on a particular theme the participants learn to draw meaning from the experience of cancer and learn to move forward.

The participants in this study self selected either the MBSR or the HA group. To be included into the study participant had to be over 18 years of age, able to speak English and have a diagnosis of cancer. There were a total of 44 in the HA group and 60 in the MBSR group. 90% of the participants were female, 64% were married and 55% had a diagnosis of breast cancer. Other types of cancers included were prostate, colorectal, lung, ear/nose/throat, brain skin and lymphatic. The average years of formal education was 14 for both groups.

Participants were given measures pre and post interventions. Although effect sizes were small (0.09 for HA and 0.28 for MBSR) both groups showed an increase in total PTG. In the MBSR group PTG was positively related to spirituality ( $r=0.285$ ,  $p=0.028$ ) but this was not seen in the HA group. FACIT-Sp scores increased in the MBSR group but were stable in the HA group. Small to medium effect sizes for spirituality in HA and MBSR were 0.09 and 0.41 respectively. Increase in spirituality correlated with decrease stress and mood disturbances in MBSR group ( $r=-0.334$ ,  $p=0.009$ ,  $r=-0.457$ ,  $p=0.000$ ) and HA group ( $r=-0.368$ ,  $p=0.015$ ;  $r=-0.424$ ,  $p=0.005$ ).

In SOSI subscales measuring peripheral manifestations there was greater improvement in the MBSR group than in the HA group ( $F=4.277$ ,  $p=0.041$ ). Overall effect sizes were small to medium  $d=0.2$  and  $d=0.49$  for HA and MBSR respectively. POMS scores reflected a similar trend. Total POMS score ( $F=5.30$ ,  $p=0.023$ ) demonstrated that those that participated in the MBSR program had greater decreases in symptoms of anxiety and anger than those in the HA group.

### **Construct of the EBP Project**

The appraised research will serve as the framework upon which the EBP project is based.

**Synthesis of the critically appraised literature to support the EBP project**

In summary, emotional distress is a serious problem among cancer patient. The research appraised for this EBP project demonstrates that mindfulness based interventions; specifically MBSR program has consistently shown to improve symptoms of stress, anxiety, depression and mood disturbances, which are components of emotional distress in adult oncology patients.

**Description of the best practice recommendation.**

Both the IOM and the NCCN have identified emotional distress as a significant problem among patients diagnosed with cancer. Consensus exists among these organization for prompt evaluation of and treatment of distress. In 2012 the Commission on cancer of the American College of Surgeons added accreditation guidelines that support a patient centered focus to cancer care, which included screening and addressing distress (ACS, 2011).

This EBP project has addressed emotional distress in oncology patients. The proposed project was modeled after Jon Kabot-Zinn's MBSR program. It included weekly two-hour sessions that continue for six weeks. The sessions included both didactic and experiential components. Patients were given MM recordings for home practice. Participants were assessed for distress pre and post intervention with the Distress Thermometer, which is consistent with NCCN guidelines as well as the BSI-18.

**Answering the clinical question**

The clinical question is: In cancer patients, what is the effect of a six-week mindfulness meditation program on emotional distress.

Table 2.2 Summary of Clinical Studies of Mindfulness Based Interventions in Oncology patients

Author	Level	Method of Review	Limitations	Main Results
Ledesma & Kumano (2009)	I Good	Systematic review and meta-analysis.	Small sample size, insufficient reporting on regarding therapist training, patient compliance and cancer staging post intervention	Mindfulness-based approaches have positive effect on psychological disturbances Lacks evidence regarding effect on physical symptoms.
Smith, Richardson, Hoffman & Pilkington (2005).	I Good	Systematic review/ non meta analytic	Small sample sizes, inadequate description of randomization, failure to report methods of sampling and recruitment, no reasons given for lost to follow-up co-interventions not reported, inadequate delineation the specific MBRS intervention	Improvements in mood sleep quality and stress reduction were found.
Shenna, Payne & Fenlon (2010)	I Good	Systematic review/ non meta analytic	Subjects did not mirror general oncology population, small sample sizes, lack of control of follow up.	Significant improvements in anxiety, depression, stress, sexual problems and immune function.
Piet, Wurtzen, & Zachariae (2012)	I Good	Systematic Review and Meta-analysis	Over presentation of women, variability of cancer stage and measures, lack of systematic diagnosis of mood or anxiety disorders and poor methodological quality of many of the studies.	The nonrandomized studies pooled pre and post effect sizes were significant for reduction of anxiety and depression. RCTs, pooled controlled effect sizes were significant for reduction of anxiety and depression.
Musial, Bussing, Heusser, Choi & Ostermann (2011)	I Good	meta-analysis /systematic review	Lack of data on cancer staging, over representation of women, and limited information on treatment status and no information on adherence to the practice of mindfulness.	Evidence supports that MBSR improves mood and emotional distress in cancer patients

Author	Level & Quality	Method & Sample size	Intervention	Outcome Measures	Main Results
Specia, Carlson, Goodey & Angen (2000)	II	RCT N=90 heterogeneous cancer patients	7 week MBSR program 90 minute weekly sessions	POMS and SOSI	POMS and SOSI scores demonstrated reduction in mood and stress in MBRS group
Carlson, Specia, Patel & Goodey (2003)	IV	One group pre and post design N=49 breast cancer N= prostate cancer	8 week MBSR program 90 minute weekly sessions	EORTC, QLQ-Core function scale, Immune Assays POMS and SOSI	Improvements in overall quality of life, stress symptoms and sleep quality. No significant changes in lymphocyte count or mood disturbances.
Lengache, Johnson-Mallard, Post-White, Moscoso, Jacobsen, Klein, & Kip, (2009)	II	RCT N=84 Breast cancer	6 week MBSR program 2 hour weekly sessions	STAI, CARS, CES-D, LOT, PSS, MOSFGH, and MOSSSS	Significantly lower levels of depression, anxiety, and fear of recurrence. Higher energy, physical functioning and physical role functioning in MBRS group
Garland, Cook, Lansdell, & Specia (2007).	III Fair	NRCT N=104 heterogeneous cancer patients	8 week MBSR program	PTGI-R, FACIT-Spiritual well-being, SOSI, and POMS	Improvement in spirituality, anxiety, anger, overall stress symptoms and mood disturbances seen in the MBSR group
Kvillemo & Bränström, (2011).	VI Fair	N=18 heterogeneous cancer patients	8 week MBSR program 2 hour weekly sessions	Semi structured interviews.	Participants expressed perceived positive effects of including increased calm, enhanced sleep quality, more energy, less physical pain, and increased well-being.

Bränström, Kvillemo, Brandberg, & Moskowitz (2010)	II	RCT N=71 Heterogeneous cancer patients	8 week mindfulness training course	FFMQ, PSS, HADS, PSOM, IES-R	Increase positive states of mind and FFMQ. Decrease in perceived stress and symptoms of posttraumatic avoidance
Foley, Baillie, Huxter, Price, & Sinclair, (2010).	II	RCT N=115 Heterogeneous cancer patients	8 week MBCT program	HAM-D, HAM-A, DASS, FACT-G, FMI	Significant improvement in depression, anxiety, distress and quality of life.

Note: CARS-Concern About Recurrence Scale, LOT- Life Orientation Scale, PSS-Perceived Stress Scale, MOSFGH-Medical Outcomes Studies Short Form General MOSSSS-Medical Outcomes Social Support Survey on Spirituality, FFMQ-Five Facet Mindfulness questionnaire, HADS-Hospital Anxiety and Depression Scale, PSOM-Positive States of Mind, IES-R The Impact of Events Scale-Revised

## CHAPTER 3

### IMPLEMENTATION OF PRACTICE CHANGE

In this chapter the method used for the design and implementation of the EBP project will be discussed. The outcomes, data collection and the measures that will be implemented to protect human subjects will also be presented.

#### **Sample and Setting**

A convenience sample was utilized, that consisted of adults with a diagnosis of cancer. Inclusion into this study required that the participant be 18 years or older, able to read and write in English. No minimum physical requirement for participation was imposed as all physical activities were modified to the individual's comfort level or participants could opt not engage in any physical activity. Consistent with the exclusion criteria of previous studies involving mindfulness-based interventions with oncology patients, (Carlson, et al, 2003, Lengache et al, 2009, Kvillemo, & Bränström, 2011) persons with severe psychiatric disorders were not included in the study. Recruitment continued until 12 eligible patients were enrolled. Participants were given a demographic data form (Appendix A) to determine eligibility, a description of the study and an informed consent form (Appendix B). Those that qualified to take part in the study were notified by telephone or email by the project manager.

#### **Outcomes**

The outcomes expected after the implementation of this EBP project was for the participants to learn skills that will help them to develop mindfulness in their daily lives. As a result of learning and cultivating mindfulness, they will be able to more effectively cope with the emotional burdens associated with cancer and its treatments. The effectiveness of the intervention was demonstrated by lower distress scores after MBSR training.



**Intervention**

A six-week two-hour mindfulness meditation class, modeled after the MBSR program was offered to patients with a primary diagnosis of cancer. MBSR instructor, Nina Thorne, taught the classes. The classes met weekly on Tuesday evenings from 5:30 PM to 7:30 PM. They began on July 1, 2014 and continued until August 5, 2014. The classes include experiences with gentle yoga stretches, body scan (lying meditation), mindful walking and sitting meditation. Using breath-based sitting, walking, and lying-down meditation (the body scan), mindful communication skills, and mindful movement, patients learned to widen their life choices by living with greater awareness and acceptance of the present moment. They were asked to commit to meditation and/or mindful movement for 30 to 45 minutes a day, called formal practice and to increasing mindfulness in their daily life doing the dishes, driving, engaging in conversation, which is called informal practice. Patients received a yoga DVD and two mindfulness meditation CDs for informal practice at home and assigned readings from *Mindfulness-Based Cancer Recovery* (2011) by Linda Carlson and Michael Speca,. Carlson and Speca, are among the most distinguished researchers on mind/body/heart approaches to cancer recovery, have developed and taught mindfulness meditation and yoga at the Tom Baker Cancer Centre in Calgary, Canada to over 15000 cancer patients.

**Planning**

The DNP student worked with MBSR instructor Nina Thorne and Alicia Kidd-Francis for the implementations of this project. The classes were held at MBSR-Long Island, a meditation studio in Speonk New York. The studio was equipped with chairs and mats designed for meditative practices. The instructor was located through the Center for Mindfulness's international network of certified mindfulness instructors. Ms. Thorne is a licensed clinical social worker with 28 years of professional experience. She

is a trained family therapist and has worked in a variety of clinical settings. Mrs. Thorne completed her training as MBSR instructor through the Center for Mindfulness at the University of Massachusetts Medical School. She currently teaches MBSR and mindfulness-based meditation classes in Eastern Long Island.

### **Recruiting sample**

Recruitment into the study was done through advertisement and referrals. Flyers detailing the project were sent to oncologists at Southampton Hospital, Stony Brook University Hospital, Peconic Bay Medical Center, and Memorial Sloan Kettering in Commack. Flyers were also posted in the public libraries of various towns in the East End area of Long Island. The study was advertised on the MBSR-Long Island website and a monthly newsletter sent to over 300 former MBSR students. The advertisements contained information about the project and a telephone number to contact the DNP student. The response from those sources was very modest, however when Susie Rodent, president of The Coalition for Women's Cancers at Southampton Hospital publicized the study, the response was overwhelming. There were over fifty people that inquired about the study and twenty-five were eligible however the study could only accommodate 12. Recruitment continued until 12 eligible participants were enrolled into the study. The number of participants was based on the capacity of the studio.

### **Data Collection.**

After IRB approval was granted by Valparaiso University the DNP student began recruiting patients. Informed consents were obtained from all participants after the risk and benefits were thoroughly explained and all questions answered. Patients were assured that they had no obligation to enter or remain in the study and that they would suffer no penalty if they decided to withdraw prior to the completion of the six weeks. Patient protected health information, demographic data and results from the outcome measures are kept confidential. All participants' data was kept in a locked filing cabinet

in the DNP student's home office. Data from outcome measures was collected prior to each mindfulness meditation class.

### **Measures and their reliability and validity**

The NCCN Distress Thermometer (DT) (Appendix D) and the Brief Symptoms Inventory- 18 (BSI-18) were used to measure the study participant's distress levels. The DT is a tool recommended by the NCCN for assessment of distress in cancer patients. A multidisciplinary team from premier cancer centers developed this tool across the United States. The team was composed of representatives from social work, psychology, nursing psychiatry, clergy, and patient advocacy. It is a self-report measure with a 10-point scale, with an endpoint marked "No distress" and the other endpoint marked "Extreme distress" found on the left of the tool. It is similar to the commonly used numerical pain scale, where the higher the number the more intense the distress. On the right side, patients are asked to indicate the issues that are contributing to their distress (Foster, Zevon, Gruber, & Scrivani, 2011). Since the creation of the DT a number of studies has been conducted on its use in measuring distress among patients with various cancer diagnoses.

In an early study Hoffman, Zevon, D'Arrigo, and Cecchini (2004) examined the DT using the receiver-operation characteristic (ROC) curve. The researchers utilized a sample composed of heterogeneous cancer patients to determine whether the DT could distinguish the patients who met the cutoff scores of two measures widely used assess psychological distress in cancer patients, the Brief Symptoms Inventory (BSI) is 53-item a tool and the Brief Symptoms Inventory (BSI-18) a shorter version of the BSI. They found that the DT's ability to detect distress was comparable to that of the both the BSI and the BSI-18. The researchers were not able to conclude on a DT cut off score. The cut off score of 5 resulted in a sensitivity of .59 and a specificity of 0.71. The authors

concluded that the findings of the study supported the validity of the DT as a screening tool for distress in oncology patients.

Jacobsen et al, (2005) used a sample of 380 patients with various cancer diagnoses from five different sites to compare the DT with HADS and the BSI-18. Similar to Hoffman et al, (2005) the researchers used the ROC curves to find the DT cutoff score. The cutoff of 4 with a sensitivity of 0.77 and specificity of 0.68, met the HADS cutoff score of 14, as well as the BSI-18 cutoff scores of 10 for male patients and 14 for female patients with a sensitivity and specificity of 0.70. The DT's AUC demonstrated good accuracy in distinguishing distressed and non-distressed patients.

Ransom et al, (2006) compared the DT with Center for Epidemiological Studies-Depression Scale (CES-D) and the State-Trait anxiety Inventory-State Version (STAI-S) among oncology patients undergoing bone marrow transplant (BMT). The researchers found that there was significant correlation between the DT with the CES-D ( $r=0.59$ ,  $p < 0.0001$ ) and the STAI-S ( $r=.58$ ,  $p < 0.0001$ ). The researchers also examined the relationship between the DT's cutoff score of 4 and clinical variables. The clinical variables were significantly related to performance status ( $r= 0.20$ ,  $p < 0.0001$ ). The results showed that the DT has considerable variance with the both measures. The DT's cutoff score was found to be significantly associated with the 32 of the 33 on the Patient problem list ( $p < 0.05$ ). Ransom et al (2006) concluded that the DT is useful in identify distress in patients undergoing BMT.

The BSI-18 is one of three instruments designed to measure psychological distress developed by Leonard Derogatis. It is a self-report questionnaire with used in both cancer and medical patients. It is a shortened version of the BSI consisting of 18 items rather than 53. The BSI-18 is composed of three dimensions of psychological distress, somatization, depression and anxiety. There are six descriptions of each dimension in which respondents are asked rate on a scale from 0 (not at all) through 4

(very much) the extent to which they affected by the symptoms over the last seven days. The Global Severity Index (GSI) can be calculated and represents the total score, which summarizes the respondent's current level of psychological distress. (Meijer, De Vries, & Van Bruggen, 2011). The BSI-18 has been promoted in the oncology patient population because its manual's "inclusion of normative data for an oncology sample and analysis of the BSI in a sample of cancer patients" (Recklitis and Rodriguez, 2007 p.429). It has also been used as a standard measure in validation studies of other distress screening tools, such as the distress thermometer (Meijer, De Vries, & Van Bruggen, 2011).

Zebora et al (2001) conducted one of the early reliability and validity studies on the use of the BSI-18 in adult cancer patients. The BSI-18 was administered to 1543 adult oncology patients as part of their entry to care in a regional cancer center. Reliability and validity was established with a Cronbach's alpha of 0.89. The GSI of the BSI-18 was comparable with that of the full BSI with  $r = 0.84$  ( $p < 0.001$ ). The study found that the internal consistency for a total score was satisfactory and using an alternative cutoff from what is given in the BSI-18 manual, for cancer patients, sensitivity and specificity of the measure was found to be adequate.

In a study involving 8,945 adult survivors of childhood cancer, Recklitis et al (2006) confirmed the factor structure using exploratory factor analysis and a confirmatory factor analysis. They found that the internal consistency reliabilities, and the factor structures, demonstrate that the BSI-18 scales can be applied reliably and meaningfully to cancer survivors.

Reckliti and Rodrigez (2007) evaluated the validity of BSI-18 comparing it to the Symptom Checklist-90-Revised (SCL-90-R), a measure that is also used to screen for distress. The authors administered both measures to 221 adults with a history of childhood cancers. They found that the BSI-18 scales demonstrated strong internal

consistency and the subscales were highly correlated with those of the SCL-90-R. They determined that the BSI-21 can be used in place of the SCL-90-R but only if an alternative cutoff, consistent with the findings of Zebora et al (2001) is used.

In a study of 175 newly diagnosed Spanish breast cancer patients Galdon et al (2008) examined the structural and psychometric properties of the BSI-18. Similar to the finding of Reckliti and Rodriguez (2007), the researchers found the measure to have high internal consistency. The results of their study demonstrated that the BSI-18 is reliable and structurally valid tool for screening breast cancer patients for psychological distress.

## CHAPTER 4

### Findings

This EBP project was designed to determine if a mindfulness meditation program impacted the emotional distress levels of adult oncology patients in eastern Long Island, New York. The PICOT question for the EBP project was: In cancer patients, what is the effect of a six-week mindfulness meditation program on emotional distress? A six-week mindfulness meditation class modeled after standard the MBSR program was chosen as the intervention. The primary goal of this program was to help the participants cultivate mindfulness in their lives in order to reduce emotional distress. This chapter will describe the data analysis of the EBP project. Emotion distress was measured using the DT and the BSI-18. The following data analysis will detail project outcomes and compare the effectiveness of mindfulness meditation on pre and post DT and BSI-18 scores.

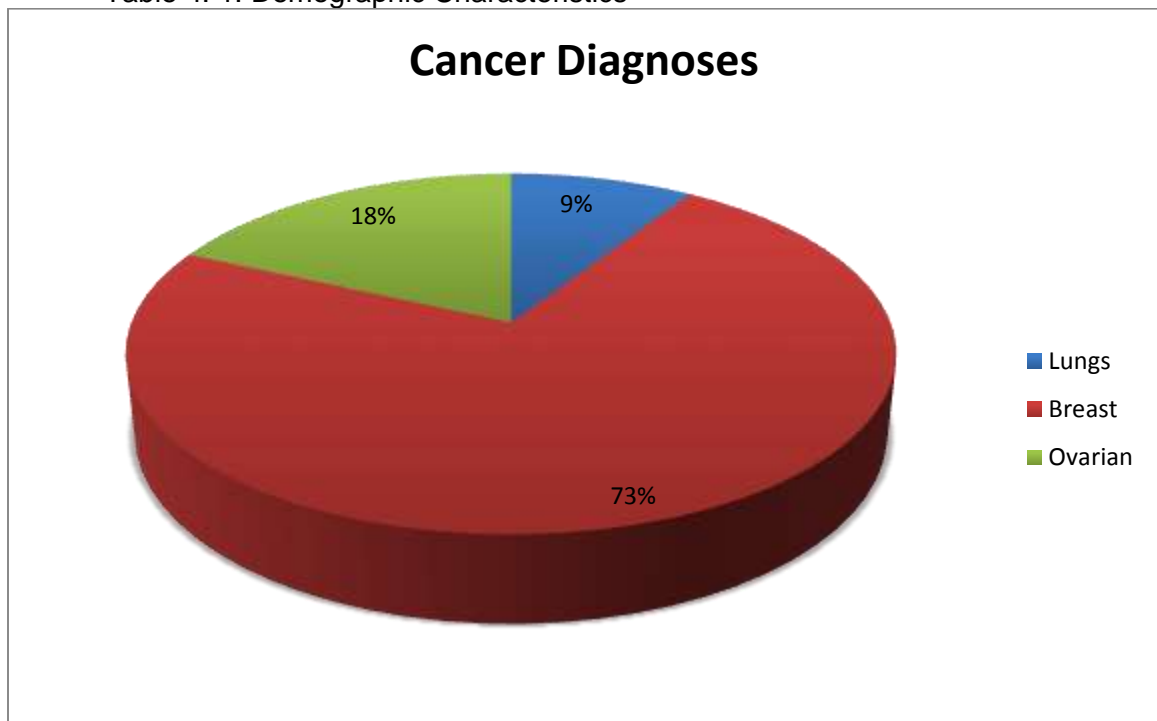
#### **Participant Characteristics**

**Size.** Twelve participants were enrolled in the study, however the only male participant withdrew on the first day citing scheduling conflicts. Eleven participants completed the project and the pre and post assessments.

**Characteristics.** All the participants were Caucasian females between the ages of 30 to 80, and a mean age of 58.64 ( $SD = 18.24$ ). Seven of the participants were married (63.6%), two were widowed (18.2%) and two were single (18.2%). The breakdowns of cancer diagnoses were as followed: eight of the participants had a diagnosis of breast cancer (72.7%) two had ovarian cancer (18.2%) and one had lung cancer (9.1%) (Table 4.1). Cancer stages ranged from 1-4 however only 72.7 % ( $n = 8$ ) of the participants responded to this question. A breakdown of the cancer stages was: 12.5% had stage 1 ( $n = 1$ ), 25% had stage 2 ( $n = 2$ ), 37.5% had stage 3 ( $n = 3$ ) and 25%

had stage 4 ( $n = 2$ ). Participants were asked the number of years since their cancer diagnosis, 72.7% ( $n = 8$ ) responded. Years of duration with cancer were from zero to 11 years with a mean 2.88 ( $SD = 3.39$ ). At the time of the intervention 45% ( $n = 5$ ) of the participants were receiving cancer treatments in the form of chemotherapy, radiation and/or surgery. Four participants (36.6%) were undergoing chemotherapy, two (18.2%) were undergoing radiation therapy and two (18.2%) had surgeries. Ten participants had undergone cancer treatments prior to starting the intervention. Eight (72.7%) had a history of chemotherapy treatments; eight (72.7%) had radiation treatments and seven (63.6%) had undergone surgery. They were also asked to identify any religious affiliations and history of meditative practices. Three participants (27.3%) indicated that they had a religious affiliation and 36.6% ( $n = 4$ ) indicated that they had a history of meditative practice.

Table 4. 1. Demographic Characteristics





**Instrument reliability.** The BSI-18 and the DT were utilized to measure emotional distress. The BSI-18 is composed of three dimensions of psychological distress, somatization, depression and anxiety. Respondents were asked to rate on a scale from 0 (not at all) through 4 (very much) the extent to which they affected by the symptoms over the last seven days. A Global Severity Index (GSI) is calculated and represents the respondent's level of distress. The DT is a self-report measure with a 10-point scale, with an endpoint marked "No distress" and the other endpoint marked "Extreme distress" found on the left of the tool. On the right side, there is a problem list. Patients are asked to indicate the problems that are contributing to their distress (Foster, Zevon, Gruber, & Scrivani, 2011).

Reliability of was established for the BSI and DT in previous studies with a Cronbach's alpha of 0.89 and .81 respectively. The reliability of a measure is its ability to produce consistent results under the same circumstances. Cronbach's alpha provides a value that indicates the overall reliability of a measure. The acceptable values for the Cronbach's alpha are .7 to .8, lower values are indicative of lower reliability. The BSI-18 Cronbach's alpha for the EBP project was .92 however the DT demonstrated lower reliability for the EBP project with a Cronbach's alpha of .56.

### **Changes in Outcomes**

The PICOT question for this EBP project is: In cancer patients, what is the effect of a six-week mindfulness meditation program on emotional distress? The SPSS statistical software version 21 was utilized to perform statistical analysis of the data. The alpha level set was at 0.5. Descriptive statistics and non-parametric test, the Wilcoxon signed rank test, was used to compare pre and post scores of the BSI-18 and the DT. A non-parametric test was appropriate due to the small sample size ( $n=11$ ) and the fact that the data was not normally distributed. The Kolmogoro-Smirnov and Shapiro-Wilk tests were used to determine normality of the data. The Wilcoxon signed rank test is the

equivalent of the paired-samples *t*-tests and is used to compare two scores from the same sample.

**Brief Symptoms Inventory 18.** The BSI-18 measures three dimensions of distress using three subscales: somatization, depression, and anxiety. Each subscale has a total of six items. It also provides a total score, which summarizes the respondent's total distress score (Global severity score). Lower numbers represent lower distress. Statistically significant changes were observed in all three dimensions and the global severity score. The Somatization pre test mean was 5.09 (*SD* = 3.41), and its posttest mean was 3.36 (*SD* = 4.38). The post somatization scores were statistically significantly lower than the pre intervention scores ( $p = .030$ ). The depression pre-test mean was 6.55 (*SD* = 4.76) and the post-test was 3.00 (*SD* = 4.38). The post depression scores were significantly lower than the pre intervention scores ( $p = .010$ ). The Anxiety pre-test mean was 7.91 (*SD* = 3.986) and the post-test was 3.91 (*SD* = 3.78). The post anxiety scores were significantly lower than the pre intervention scores ( $p = .006$ ). For the global severity scores the mean for the pretest was 19.55 (*SD* = 3.23) and the posttest mean was 10.27 (*SD* = 3.54). The post global severity scores were significantly lower than the pre intervention score ( $p = .013$ ). There were statistically significant reduction in somatization, depression, anxiety and global severity scores (See Table 4.2). These scores are patterned in figure 4.2. The post-intervention scores demonstrated that there was a significant reduction in all dimensions of emotional distress.

**Distress Thermometer.** The mean for the pre test was 5.60 (*SD* = 1.50) and the mean for posttest was 4.40 (*SD* = 2.22). There was not a statistically significant difference between the pre and posttest scores ( $p = .121$ ) (See Table 4.3). The post-interventions DT scores did not demonstrate significant reduction in emotional distress. The DT scores are patterned in figure 4.4.

Figure 4.1

*BSI 18 Scores*

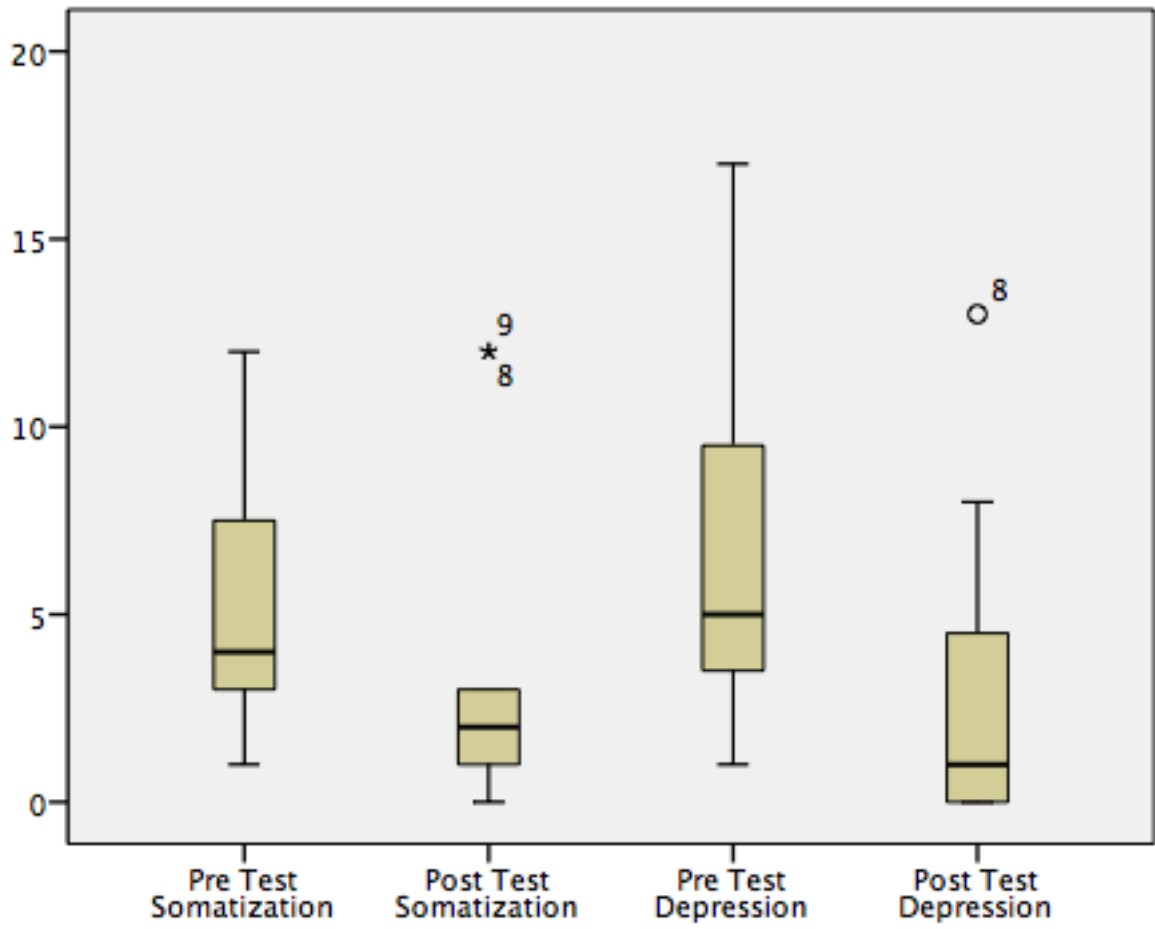


Figure 4.2

*BSI 18 Scores*

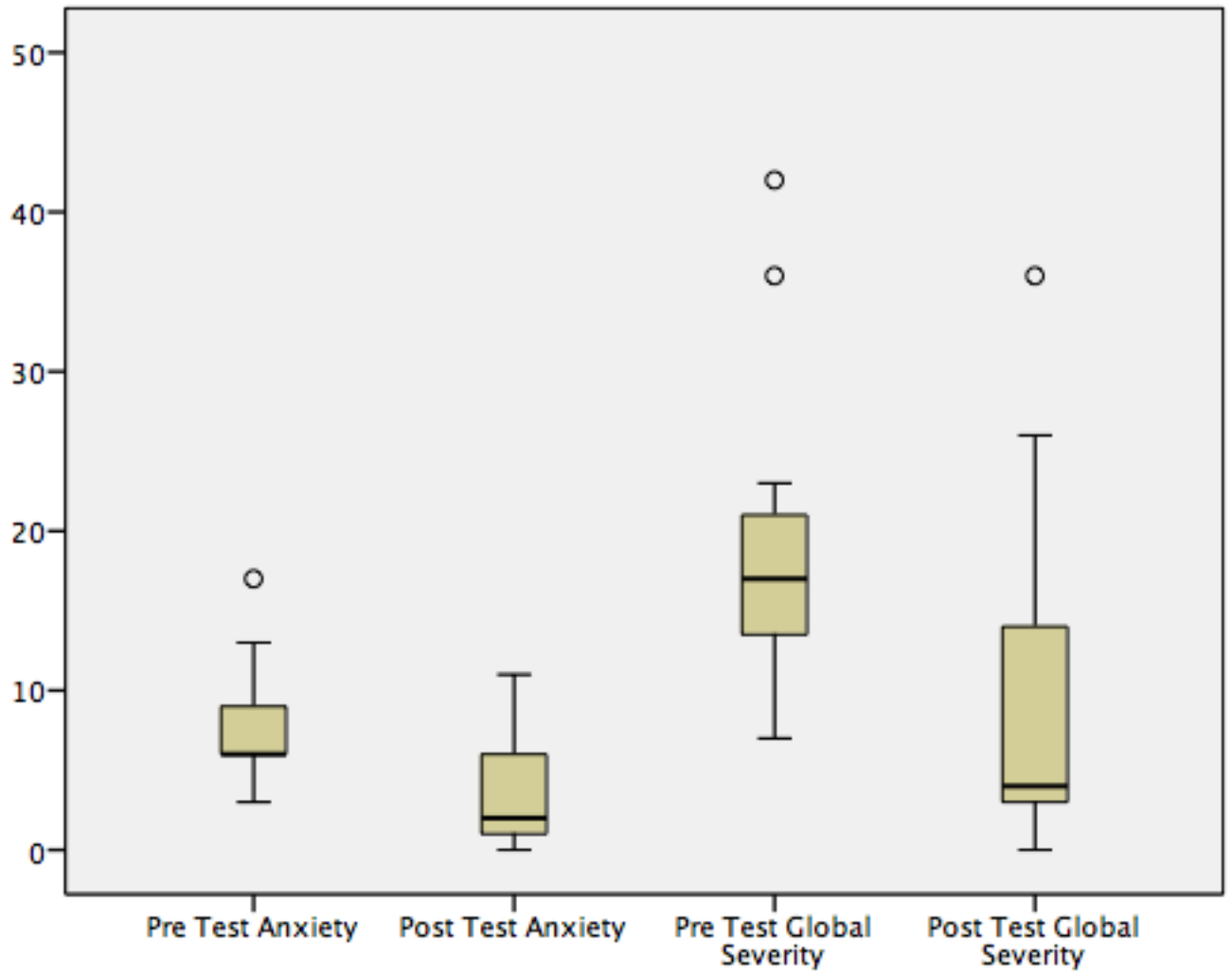


Figure 4.3

*DT Scores*

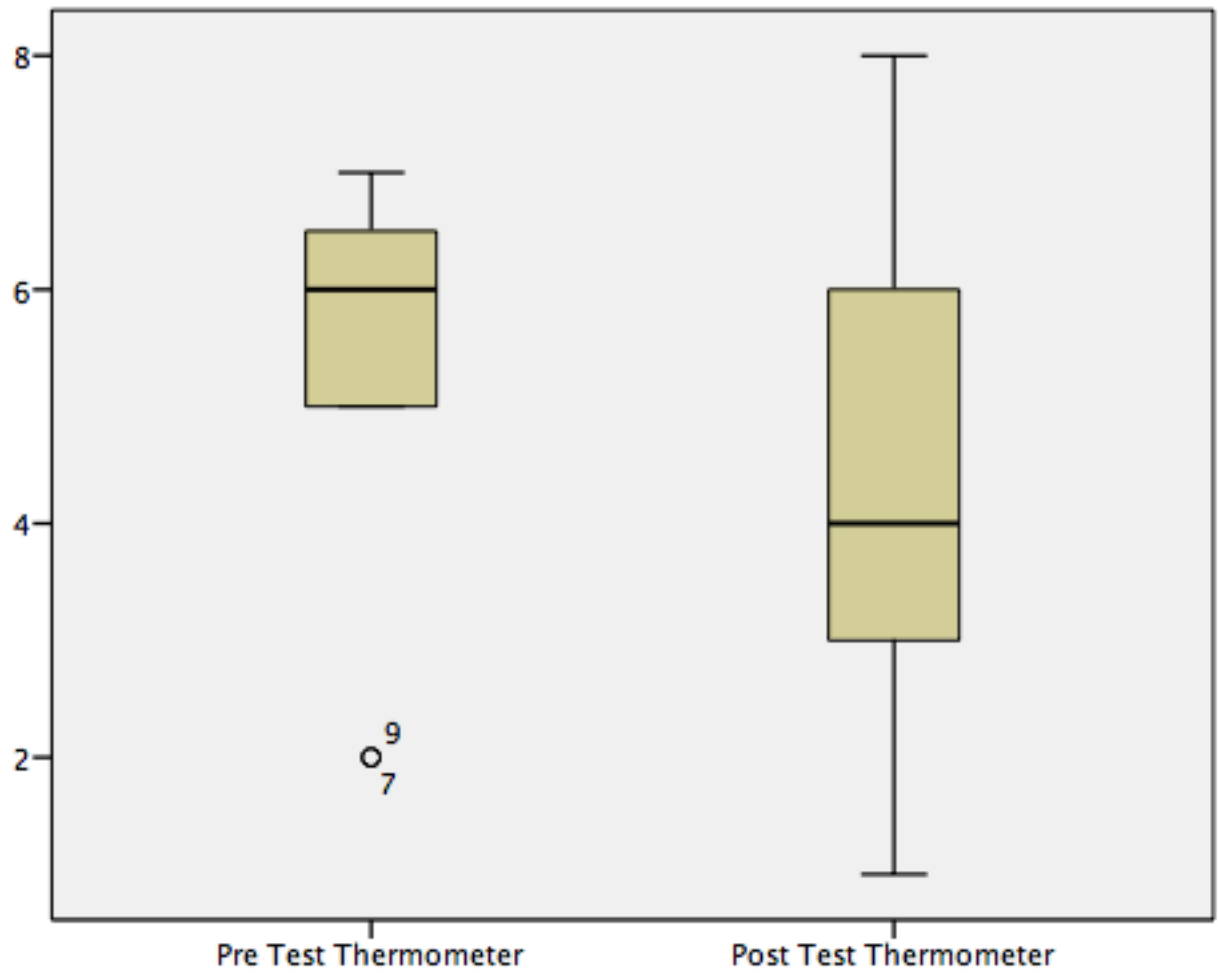


Table 4.2

*BSI-18 Results*

Scales	Pre M(SD)	Post M(SD)	<i>T</i>	Sig. (2-sided test) <i>p</i> < .05
Somatization	5.09 (3.41)	3.36 (4.38)	6.5	.030
Depression	6.55 (4.76)	3.00 (4.382)	4.0	0.10
Anxiety	7.91 (3.98)	3.91 (3.78)	2.0	.006
Global Severity	19.55 (3.23)	10.27 (3.54)	5.0	.013

Table 4.3

*DT Results*

Scale	Pre M(SD)	Post M(SD)	<i>T</i>	Sig. (2-sided test) <i>p</i> < .05
Distress Thermometer	5.60 (1.50)	4.40 (2.22)	7.00	.121

## CHAPTER 5

### DISCUSSION

#### Explanation of Findings

The purpose of this EBP project was to determine if a six-week mindfulness meditation program is effective in decreasing emotional distress in patients with cancer. Emotional distress was measured before and after six week MM classes using the BSI-18 and the DT. Attrition in this project was very low. The project began with twelve participants, only one dropped out citing work conflicts after the first week. The low attrition can be due to the fact that the studio where the classes were held was in close proximity to where the participants lived. Only one participant had to commute for over an hour each way however she was never late and never missed a session. Also the project took place in the summer, so inclement weather was not a factor except for one day in week three where there was a violent thunderstorm and the class started late. Finally, the most profound reason than can be attributed to low attrition was the fact that for most of the participants expressed that the MM classes was their only outlet for addressing their distress and experienced they positive benefits from attending the classes. At the end of the six weeks intervention there was statistically significant reduction in all dimensions of distress on the BSI-18 subscales, somatization ( $p= .030$ ), depression ( $p = .010$ ), anxiety ( $p= .006$ ) as well as the global severity score ( $p= .013$ ). These results demonstrated that there was a dramatic improvement in the patients' distress level after completing the six-week mindfulness meditation program.

The results further adds to the body of evidence that lends support to the use of mindfulness in the oncology population as a viable intervention that may help individuals experiencing the emotional burden associated with cancer and its treatments. The

results from this EBP project were consistent with those reflected in the literature with regard to both physiological and psychological status.

Specia et al, (2000) and Lengache et al, (2009) used modified MBSR interventions lasting six weeks rather than the standard eight weeks and excluded a silent retreat. However despite these modification results from both studies demonstrated improvements in psychological status and statistically significant reduction of total stress symptoms. The post intervention scores from the DT were unexpected in light of the post intervention scores from the BSI-18. Although reliability for the DT was established in previous studies (Hoffman et al, 2004, Jacobsen et al, 2005 and Ransom et al, 2006) the DT demonstrated low reliability for the EBP project with a Cronbach's alpha of .567. This may explain why statistically significant differences in pre and post interventions were not seen. Furthermore the studies that demonstrated the reliability of the DT used significantly larger sample sizes, which may also be a contributing, factor to the low Cronbach's alpha score for the EBP project.

### **Evaluation of the EBP Project: Dorothea Orem's**

The Self-care Deficit Theory of Nursing is a grand theory of nursing. Among the theory's many domain concepts, nursing, the goal of nursing, nursing therapeutics and nursing focus are the concepts that were the most applicable to this EBP project. According to the theory, nursing is defined as activities that are designed to help individuals or groups to maintain or change conditions within themselves or their environment (Orem, 1985). The goal of nursing is to equip individuals and families to be capable of meeting their self-care needs. Nursing therapeutics are deliberate actions that provide support, education, and assistance to individuals and families. The focus of nursing is to address the need for self-care and " the provision and management of it on a continuous basis in order to sustain life and health, recovery from disease or injury and cope with their effects" (Orem, 1985, p. 208).



There are three theories within Orem's grand theory the (a) theory of self-care, (b) theory of self-care deficit and (c) theory of nursing systems. As previously stated the theory of self-care was chosen to guide the EBP project.

The concepts applicable to the project were therapeutic self-care demand and self care agency.

As an oncology nurse the DNP student was keenly aware of the need for effective methods of addressing the emotional needs of patients suffering from cancer. Providing a mindfulness meditation class for this patient population was not simply a scholarly enterprise but as defined by the theory it was a function of nursing and nursing therapeutics. The DNP student was engaged in an activity to help patients with cancer change conditions within themselves through support and education. Through the mindfulness meditation classes, the participants learned techniques to help them cope with anxiety, depression and emotional pain. They received support from the DNP student, the instructor and from the other members of the class. Through the cultivation of mindfulness in their daily lives, the patients were able to address their self-care demands. The strength of the theory of self-care is that it provides a comprehensive framework for nursing and it is applicable beyond the traditional nurse patient roles. The limitations of this theory is its complexity and often difficult to understand terminology. Consequently, navigating through the theory can be very challenging without the use of additional sources that provide clarity.

### **Evaluation of the EBP Project: Stetler Model of Evidence-Based Practice**

The Stetler model provides a framework to follow. It outlines five steps or phases that helps the user in assessing, utilization and implementation of research (Schmidt & Brown, 2009). The phases include preparation, validation, comparative evaluation/decision making, translation/application and evaluation (Stetler, 2001). These phases facilitate the navigation and the organization of the research literature.

The Stetler model was a good fit for this EBP project. It is clear, prescriptive and easy to navigate. In preparation for this EBP project the DNP student identified a need in the oncology patient population. Significant emotional distress was consistently observed in the clinical practice setting. While resources are available to address the issues of distress in this population the DNP student questioned if MM would be a viable option to address this problem in clinical practice. The stakeholders were identified as the patients, nurses, social workers and physicians. The anticipated outcome of this intervention was to identify if a MM program could decrease the level of distress in the oncology patients that would participate in the intervention. Upon completing the first step of the process the DNP student progressed to the validation phase.

In this phase the research literature was searched and critiqued. Articles were rated using rating system for Hierarchy of Evidence provided by Melnyk and Fineout-Overholt (2005). The use of MM in the oncology population was overwhelmingly supported by the research literature, hence the DNP student confidently moved to phase three, comparative evaluation and decision-making. After this phase the EBP project went confronted various challenges. Initially the project was planned to take place at a cancer center in a small hospital in Indiana. When the project proposal was presented to the healthcare team it was well received by the nurses and social workers at the cancer center. However when presented to the hospital's research committee the project was not accepted for implementation. Consequently, this caused a delay in implementation of the project as a new location had to be secured. This proved to be very difficult.

Finally the decision was made to carry out the project not in a cancer center but at a studio in eastern long Island. In this phase a meeting was arranged with Alecia Francis an oncology NP at the Stony Brook University hospital to discuss the feasibility and desirability of a MM class for oncology patients in the eastern region of Suffolk

County. There were no such classes being offered in the cancer center at Stony Brook. Mrs. Francis enthusiastically agreed to refer patients to the project. I located a MBSR instructor; Nina Thorne through the center for mindfulness network. Mrs. Thorne owned a small meditation studio in Long Island and agreed to conduct the classes in her studio.

In the translation/application phase I implement the project based on the research literature. The MM class was modified version of MBSR program. The MM class ran for six weeks, the participant met weekly in the evenings for two hours. The classes consisted of didactic material, discussions, gentle yoga stretches, sitting, and walking meditation. The classes were held as MBSR-Long Island in Speonk.

In the fifth phase the DNP evaluated the intervention using the Distress Thermometer and the BSI-18. Emotional distress was evaluated prior to and upon completion of the project.

**The Strength of the EBP Project.** One of the strengths of the EBP project was the strong body of evidence that supports the effectiveness of mindfulness to address symptoms of distress in oncology patients. This project demonstrates this, through the replication of the results of similar studies. Secondly the classes provided both didactic and experiential learning opportunities as well as resources for home practice that helped the participant to continue the cultivation of mindfulness beyond the six weeks of the class was offered. Third strength was the fact that an exceptional MBSR instructor led the class. The instructor was highly trained with many years of experience teaching MBSR. She created a wonderful, comforting and healing environment. The studio where the classes were held was a beautiful space with large windows that flooded it with natural light. The studio was well equipped with chairs, pillows blankets and yoga mats that allowed the participants to be in a position that was most comfortable for them. The class was very small and intimate and the participants made connections with one another very quickly. The group dynamics was very powerful as they were given the

opportunity to share with each other, thoughts, struggles, fears and joys. At the end of the six weeks the patients wanted to keep coming and they expressed how profoundly they had been impacted by the experience.

**The Weakness of the EBP Project.** One of the major weaknesses of the EBP project was its small sample size. Consequently this lowered the statistical power of the results. The small sample size was due to limited financial resources to fund the project. This limited the number of times that these classes could be conducted and the resources would allow for only one class rather than multiple classes that would produce a larger sample. A second weakness was the overrepresentation of women with breast cancer. The sample did not reflect the general oncology population. As a result the findings could not be generalized to the larger population. This was not surprising as this was a phenomenon that was seen in much in the literature. Piet, Wurtzen, and Zachariae (2012) encountered this in their systematic and meta analysis of the literature on MBSR and oncology. Having a larger sample size could have mitigated this weakness.

### **Implications for the Future**

**Practice.** Emotional distress is a very significant problem among patients with cancer. Many of the participants in this study stated that their psychosocial needs were not adequately addressed during the course of their cancer treatments. It is important that nurses as well all members of the healthcare team assess patient for symptoms of distress and address them according to established NCCN guidelines. MM is an additional option that nurses can offer to help patients with cancer who are experiencing emotional distress.

RNs can obtain training in MBSR and initiate classes at the institutions that they work. They can also arrange classes taught by MBSR instructors for patients. After the completion of this EBP project a MM class was instituted at the cancer center where

many of the participants were receiving treatment. The center is currently utilizing the services of the MBSR instructor from the project to facilitate those classes.

**Research.** This EBP projects adds to the existing body of knowledge on mindfulness based interventions. Additional research is needed to further expand what is known of the effects of mindfulness in cancer patients with regard to other problems associated with cancer and its treatments such as pain, nausea, concentration and fatigue. There are opportunities for nursing research to further explore the use of MM in complex oncology patient populations such as those undergoing hematopoietic stem cell transplant as pediatric oncology patients.

**Education.** The positive results realized in this EBP projects and the body of research evidence that demonstrates its effectiveness with regard to distress symptoms experienced among oncology patient, lends support for oncology nurses to educate themselves and their patients regarding this intervention. It may not always be possible to facilitate a formal MM class particularly in the inpatient setting, however it is still feasible for nurses to pursue educational training in mindfulness. They can utilize this training to integrate mindfulness in their nursing practice and to teach patients mindfulness techniques at the bedside to assist them in coping with symptoms of anxiety and depression.

**Theory.** This EBP project fit very well in the Theory of self-care particularly with regards to theory's domain concepts of nursing, the goal of nursing, nursing therapeutics and nursing focus. Similarly other humanistic nursing theories such as those of Watson, Newman, and Parse would fit as well. The implications of the concept of mindfulness in nursing theory have not been exhaustively explored. This is an opportunity for nursing scholars to gain further clarity on mindfulness through the process of concept analysis and the development of a middle range theory. A middle range theory of mindfulness in nursing would facilitate its integration into nursing practice (White, 2014).

### **Conclusion**

Cancer patients are often faced with life-long physical, psychological and social problems associated with treatment and the disease process. These psychosocial challenges can potentially hinder a patient's ability to effectively cope with the diagnosis of cancer, as well its physical and treatment demands. Failure to identify and treat distress in cancer patients may result in adverse consequences, which include non-adherence to medical treatment, additional office and emergency room visits, impaired cognition, sleep disturbance and overall diminished quality of life (IOM, 2008). Many survivors of cancer report that their providers failed to recognize and adequately address their psychological needs (IOM, 2008). It is important that patients with cancer are routinely screened for distress and once identified should be addressed in a timely manner. This EBP project demonstrated that mindfulness meditation is effective in helping patients to reduce their level of distress.

This six-week MM class provided the participants techniques and resources to help them manage their distress and significantly reduce it. The success of this EBP project resulted in the adoption of similar classes in the cancer of a local private hospital.

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## **BIOGRAPHICAL MATERIAL**

### **Marie A. Benoit**

Mrs. Benoit graduated from Oakwood University a historically black college located in Huntsville, Alabama with an associate of science degree in nursing in 1994. Mrs. Benoit took an interest in research early in her nursing career as she investigated the effect of cereal-based oral rehydration therapies in infants and toddlers. She also worked as a charge nurse in a rehabilitation facility and small community hospital until she found her passion in oncology nursing at Beth Israel Deaconess medical center where she worked as a staff nurse on a Bone Marrow Transplant unit. She subsequently moved to Indiana and worked at IU health Goshen hospital on a Medical Surgical Oncology unit. She obtained her BSN in 2008 at Emmanuel College and a master's degree in nursing from Valparaiso University in 2013. She is currently an adjunct faculty at Molloy College and works per diem on a Bone Marrow transplant unit at New York Presbyterian Hospital. She is a member of the Oncology Nurses Society and is active in mission work. Marie has travelled twice on humanitarian missions to Haiti and assisted in the relief efforts after the devastating earthquake in 2010. In 2008, Mrs. Benoit received the Carla Barton Service to Humanity Award for both her service in Haiti and her work with urban youth in the City of Boston. After receiving her DNP she plans to continue teaching and work as Nurse Practitioner in an oncology group practice in New York City. Her ultimate goal is open a nursing school in Haiti.

**ACRONYM LIST**

BSN: Bachelor of Science in Nursing

CARS-Concern About Recurrence Scale

CINAHL: Cumulative Index for Nursing and Allied Health Literature

DNP: Doctor of Nursing Practice

DT: Distress Thermometer

EBP: Evidence-based practice

FFMQ-Five Facet Mindfulness questionnaire

HADS-Hospital Anxiety and Depression Scale

IES-R The Impact of Events Scale-Revised

IRB: Institutional Review Board

LOT- Life Orientation Scale

MBSR: Mindfulness Based Stress Reduction

MOSFGH-Medical Outcomes Studies Short Form General

MOSSSS-Medical Outcomes Social Support Survey on Spirituality

MM: Mindfulness Meditation

PSOM-Positive States of Mind

PSS-Perceived Stress Scale

Proquest: Proquest Nursing and Allied Health

STAI: Stat-Trait Anxiety Inventory

SPSS: Statistical Package for the Social Sciences

## Appendix A

### Mindfulness Meditation Classes for Cancer Patients At MBSR-Long Island in Speonk, NY Tuesday evenings 5:30 PM- 8:00 PM July 1 - August 5, 2014



This is an evidence based research project that will evaluate the effects of a six-week mindfulness meditation program on emotional distress scores of persons diagnosed with cancer.

The mindfulness training in this project is based upon the well-researched Mindfulness-based Stress Reduction (MBSR) program developed by Jon Kabat-Zinn at the Center for Mindfulness (CFM)

This program will offer a modified MBSR curriculum, taught by MBSR instructor Nina Thorne, LCSW.

The program is highly participatory, supportive, and structured.

It will include:

- Guided instruction in a variety of mindfulness based meditation practices
- Gentle, mindful movement and mindful group dialogue
- Individually tailored instruction
- Home assignments supported by guided meditation CDs

#### **Eligibility Requirements**

- Diagnosis of cancer
- 18 years or older
- Able to read and write English
- Not taking antipsychotic medications

*There is no fee for participation in the project. Class size is limited to 12 participants.*

**For more information and registration please contact project manager**

**Marie Benoit (617)-970-5143 or [marie.benoit@valpo.edu](mailto:marie.benoit@valpo.edu)**

## Appendix B

### Informed Consent

**Project Title:** The Effect of a Mindfulness-based stress reduction program on emotional distress in oncology patients

**Investigator:** Marie Benoit, RN, MSN, Valparaiso University DNP student.

**Purpose:** I, \_\_\_\_\_, understand that I am being asked to take part in an evidence based practice project that will measure the effect of a mindfulness-based stress reduction (MBSR) program on emotional distress. I was selected to be a part of this project because I have a diagnosis of cancer.

**Procedure:** If I agree to participate in this project, I will be asked to attend weekly 2 hour classes for six weeks at the MBSR-Long Island. I will be shown and asked to participate in gentle yoga stretches, sitting, walking and lying meditation. I will be taught mindful communication skills and mindful movements. I will be asked to commit to meditation and/or mindful movement 30 to 45 minutes a day. I will receive a yoga DVD and two mindfulness meditation CDs to assist me with home practice. Prior to taking part in the project I must be 18 years or older, able to read and write English and not taking antipsychotic medications.

**Risks:** There are no known physical or psychological risks associated in partaking in a MBSR program.

**Benefits:** The possible benefit for participation in this project is reduction in emotional distress and knowledge on how to cultivate mindfulness in your daily life.

**FINANCIAL CONSIDERATIONS:** There is no cost associated with participation in this project and financial compensation will not be given.

**Voluntary participation/withdrawal:** I understand that I am free to choose whether or not to participate in this study. I will suffer no penalty or loss of benefits. I am free to discontinue participation in this project for any reason and at any time.

**Confidentiality:** My identity in this project will be treated as confidential. The data from the assessment tool will be reported to the DNP student.

**Questions:** If I have any questions or concerns regarding this project I can direct them to Marie Benoit at 617-970-5143 or marie.benoit@valpo.edu

**Authorization:** I have read and understand this consent form, and I volunteer to participate in this project. I am aware of the risks and benefits. I understand that I will receive a copy of this form.

\_\_\_\_\_ Participant signature Date

\_\_\_\_\_ Investigator signature Date



**Appendix C**

**Demographic Information**

Subject number: \_\_\_#\_\_\_\_\_ Age: \_\_\_\_\_ Years\_\_\_\_\_

Gender: M or F

Marital Status: Married \_\_\_\_\_ Divorced \_\_\_\_\_ Widowed\_\_\_\_\_ Single \_\_\_\_\_

Cancer Diagnosis:\_\_\_\_\_ Stage\_\_\_\_\_

Month/Year of Diagnosis\_\_\_\_\_

Year-Number=#

Current Treatment (Check all that apply):

Chemotherapy (IV/Oral)\_\_\_\_\_ Radiation\_\_\_\_\_ Surgery\_\_\_ Biologics\_\_\_\_\_ Bone

Marrow/Stem Cell transplant\_\_\_\_\_ Other\_\_\_\_\_

Past Treatment:

Chemotherapy\_\_\_\_\_ Radiation\_\_\_\_\_ Surgery\_\_\_ Biologics\_\_\_\_\_ Bone Marrow/Stem Cell

transplant\_\_\_\_\_ Other\_\_\_\_\_

Religious Affiliation: Yes\_\_\_\_\_ NO\_\_\_\_\_

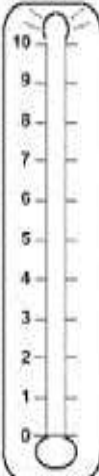
History of Meditative Practices: Yes\_\_\_\_\_ No\_\_\_\_\_

If yes, please list

\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_,

\_\_\_\_\_

Appendix D

<p><b>NCCN</b> Practice Guidelines in Oncology - v. 1.2003</p>	<h2 style="margin: 0;">Distress Management</h2>	<p style="text-align: right; margin: 0;"> <a href="#">Distress Management</a>  <a href="#">Distress Management, I.D.C.</a>  <a href="#">AS, References</a> </p>		
<p><b>Figure 1</b> Screening tools for measuring distress</p> <p>Instructions: First please circle the number (0-10) that best describes how much distress you have been experiencing in the past week including today.</p> <div style="display: flex; align-items: center; justify-content: center; margin: 20px 0;"> <div style="text-align: right; margin-right: 10px;">Extreme distress</div>  </div>				
<p>Second, please indicate if any of the following has been a problem for you in the past week including today. Be sure to check YES or NO for each.</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><b>YES NO Practical Problems</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <input type="checkbox"/> Child care</li> <li><input type="checkbox"/> <input type="checkbox"/> Housing</li> <li><input type="checkbox"/> <input type="checkbox"/> Insurance</li> <li><input type="checkbox"/> <input type="checkbox"/> Transportation</li> <li><input type="checkbox"/> <input type="checkbox"/> Work/school</li> </ul> <p style="text-align: center;"><b>Family Problems</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <input type="checkbox"/> Dealing with children</li> <li><input type="checkbox"/> <input type="checkbox"/> Dealing with partner</li> </ul> <p style="text-align: center;"><b>Emotional Problems</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <input type="checkbox"/> Depression</li> <li><input type="checkbox"/> <input type="checkbox"/> Fears</li> <li><input type="checkbox"/> <input type="checkbox"/> Nervousness</li> <li><input type="checkbox"/> <input type="checkbox"/> Sadness</li> <li><input type="checkbox"/> <input type="checkbox"/> Worry</li> </ul> <p style="text-align: center;"><b>Spiritual/religious concerns</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <input type="checkbox"/> Loss of faith</li> <li><input type="checkbox"/> <input type="checkbox"/> Relating to God</li> </ul> <p>Other Problems: _____</p> <p>_____</p> <p>_____</p> </td> <td style="width: 50%; vertical-align: top;"> <p><b>YES NO Physical Problems</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <input type="checkbox"/> Appearance</li> <li><input type="checkbox"/> <input type="checkbox"/> Bathing/dressing</li> <li><input type="checkbox"/> <input type="checkbox"/> Breathing</li> <li><input type="checkbox"/> <input type="checkbox"/> Changes in urination</li> <li><input type="checkbox"/> <input type="checkbox"/> Constipation</li> <li><input type="checkbox"/> <input type="checkbox"/> Diarrhea</li> <li><input type="checkbox"/> <input type="checkbox"/> Eating</li> <li><input type="checkbox"/> <input type="checkbox"/> Fatigue</li> <li><input type="checkbox"/> <input type="checkbox"/> Feeling Swollen</li> <li><input type="checkbox"/> <input type="checkbox"/> Fevers</li> <li><input type="checkbox"/> <input type="checkbox"/> Getting around</li> <li><input type="checkbox"/> <input type="checkbox"/> Indigestion</li> <li><input type="checkbox"/> <input type="checkbox"/> Mouth sores</li> <li><input type="checkbox"/> <input type="checkbox"/> Nausea</li> <li><input type="checkbox"/> <input type="checkbox"/> Nose dry/congested</li> <li><input type="checkbox"/> <input type="checkbox"/> Pain</li> <li><input type="checkbox"/> <input type="checkbox"/> Sexual</li> <li><input type="checkbox"/> <input type="checkbox"/> Skin dry/itchy</li> <li><input type="checkbox"/> <input type="checkbox"/> Sleep</li> <li><input type="checkbox"/> <input type="checkbox"/> Tingling in hands/feet</li> </ul> </td> </tr> </table>			<p><b>YES NO Practical Problems</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <input type="checkbox"/> Child care</li> <li><input type="checkbox"/> <input type="checkbox"/> Housing</li> <li><input type="checkbox"/> <input type="checkbox"/> Insurance</li> <li><input type="checkbox"/> <input type="checkbox"/> Transportation</li> <li><input type="checkbox"/> <input type="checkbox"/> Work/school</li> </ul> <p style="text-align: center;"><b>Family Problems</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <input type="checkbox"/> Dealing with children</li> <li><input type="checkbox"/> <input type="checkbox"/> Dealing with partner</li> </ul> <p style="text-align: center;"><b>Emotional Problems</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <input type="checkbox"/> Depression</li> <li><input type="checkbox"/> <input type="checkbox"/> Fears</li> <li><input type="checkbox"/> <input type="checkbox"/> Nervousness</li> <li><input type="checkbox"/> <input type="checkbox"/> Sadness</li> <li><input type="checkbox"/> <input type="checkbox"/> Worry</li> </ul> <p style="text-align: center;"><b>Spiritual/religious concerns</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <input type="checkbox"/> Loss of faith</li> <li><input type="checkbox"/> <input type="checkbox"/> Relating to God</li> </ul> <p>Other Problems: _____</p> <p>_____</p> <p>_____</p>	<p><b>YES NO Physical Problems</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <input type="checkbox"/> Appearance</li> <li><input type="checkbox"/> <input type="checkbox"/> Bathing/dressing</li> <li><input type="checkbox"/> <input type="checkbox"/> Breathing</li> <li><input type="checkbox"/> <input type="checkbox"/> Changes in urination</li> <li><input type="checkbox"/> <input type="checkbox"/> Constipation</li> <li><input type="checkbox"/> <input type="checkbox"/> Diarrhea</li> <li><input type="checkbox"/> <input type="checkbox"/> Eating</li> <li><input type="checkbox"/> <input type="checkbox"/> Fatigue</li> <li><input type="checkbox"/> <input type="checkbox"/> Feeling Swollen</li> <li><input type="checkbox"/> <input type="checkbox"/> Fevers</li> <li><input type="checkbox"/> <input type="checkbox"/> Getting around</li> <li><input type="checkbox"/> <input type="checkbox"/> Indigestion</li> <li><input type="checkbox"/> <input type="checkbox"/> Mouth sores</li> <li><input type="checkbox"/> <input type="checkbox"/> Nausea</li> <li><input type="checkbox"/> <input type="checkbox"/> Nose dry/congested</li> <li><input type="checkbox"/> <input type="checkbox"/> Pain</li> <li><input type="checkbox"/> <input type="checkbox"/> Sexual</li> <li><input type="checkbox"/> <input type="checkbox"/> Skin dry/itchy</li> <li><input type="checkbox"/> <input type="checkbox"/> Sleep</li> <li><input type="checkbox"/> <input type="checkbox"/> Tingling in hands/feet</li> </ul>
<p><b>YES NO Practical Problems</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <input type="checkbox"/> Child care</li> <li><input type="checkbox"/> <input type="checkbox"/> Housing</li> <li><input type="checkbox"/> <input type="checkbox"/> Insurance</li> <li><input type="checkbox"/> <input type="checkbox"/> Transportation</li> <li><input type="checkbox"/> <input type="checkbox"/> Work/school</li> </ul> <p style="text-align: center;"><b>Family Problems</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <input type="checkbox"/> Dealing with children</li> <li><input type="checkbox"/> <input type="checkbox"/> Dealing with partner</li> </ul> <p style="text-align: center;"><b>Emotional Problems</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <input type="checkbox"/> Depression</li> <li><input type="checkbox"/> <input type="checkbox"/> Fears</li> <li><input type="checkbox"/> <input type="checkbox"/> Nervousness</li> <li><input type="checkbox"/> <input type="checkbox"/> Sadness</li> <li><input type="checkbox"/> <input type="checkbox"/> Worry</li> </ul> <p style="text-align: center;"><b>Spiritual/religious concerns</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <input type="checkbox"/> Loss of faith</li> <li><input type="checkbox"/> <input type="checkbox"/> Relating to God</li> </ul> <p>Other Problems: _____</p> <p>_____</p> <p>_____</p>	<p><b>YES NO Physical Problems</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <input type="checkbox"/> Appearance</li> <li><input type="checkbox"/> <input type="checkbox"/> Bathing/dressing</li> <li><input type="checkbox"/> <input type="checkbox"/> Breathing</li> <li><input type="checkbox"/> <input type="checkbox"/> Changes in urination</li> <li><input type="checkbox"/> <input type="checkbox"/> Constipation</li> <li><input type="checkbox"/> <input type="checkbox"/> Diarrhea</li> <li><input type="checkbox"/> <input type="checkbox"/> Eating</li> <li><input type="checkbox"/> <input type="checkbox"/> Fatigue</li> <li><input type="checkbox"/> <input type="checkbox"/> Feeling Swollen</li> <li><input type="checkbox"/> <input type="checkbox"/> Fevers</li> <li><input type="checkbox"/> <input type="checkbox"/> Getting around</li> <li><input type="checkbox"/> <input type="checkbox"/> Indigestion</li> <li><input type="checkbox"/> <input type="checkbox"/> Mouth sores</li> <li><input type="checkbox"/> <input type="checkbox"/> Nausea</li> <li><input type="checkbox"/> <input type="checkbox"/> Nose dry/congested</li> <li><input type="checkbox"/> <input type="checkbox"/> Pain</li> <li><input type="checkbox"/> <input type="checkbox"/> Sexual</li> <li><input type="checkbox"/> <input type="checkbox"/> Skin dry/itchy</li> <li><input type="checkbox"/> <input type="checkbox"/> Sleep</li> <li><input type="checkbox"/> <input type="checkbox"/> Tingling in hands/feet</li> </ul>			
<p>Version 1.2003, 5/2/03 © 2003 National Comprehensive Cancer Network, Inc. All rights reserved. These guidelines and the illustrations may not be reproduced in any form without the express written permission of NCCN. <span style="float: right;">D15-A</span></p>				

