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A Retrospective Study: Diagnosis and Treatment of Depression
in Breast Cancer Patients

Presented to the Faculty of the School of Nursing
The George Washington University
In partial fulfillment of the
requirements for the degree
Doctor of Nursing Practice

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A RETROSPECTIVE STUDY: DIAGNOSIS AND TREATMENT OF DEPRESSION IN BREAST CANCER PATIENTS

Abstract

Background: One issue related to breast cancer diagnosis and treatment is the risk of depression.

Objectives: The purpose of this study is to examine ethnic differences and commonalities in the method of diagnosis and treatment of depression for female breast cancer patients.

Specific Aims: The study aims to examine the method of diagnosis and treatment of depression in Caucasian, Latino, and African American breast cancer patients.

Questions/Hypothesis:

1. Does the method of diagnosis and treatment of depression differ based on ethnicity?

Hypothesis: Method of diagnosis and treatment will differ for Minorities as compared to Caucasians;

2. What percentage of patients received pharmacologic versus non-pharmacologic treatment for depression? Hypothesis: Minority patients are more likely to elect non-pharmacologic treatment versus pharmacologic for depression.

Methods: This retrospective chart review utilized Chi Square Analysis and took place at a large academic medical center with female breast cancer patients, ages 25 to 80 years, seen in the outpatient palliative care clinic from 2014 to 2017.

Results: The 80 charts revealed positive screenings for depression for 52.2% Caucasians (N=12), 58.6% African Americans (N=17), and 60.7% Latinos (N=17). 33.8% did not have any pharmacologic treatment (N=27), 66.3% had at least one kind of pharmacologic treatment

(N=53). A total of 5% of the patients did not receive any non-pharmacologic treatments (N=4), 95% had some form of non-pharmacologic treatment (N=76).

Conclusions: The outpatient palliative care clinic helps to provide management of symptoms for female breast cancer patients with depression by implementing both pharmacologic and non-pharmacologic measures.

Background

Breast cancer is commonly associated with emotional and psychological distress in patients of all genders, races, and ages. Rates of depression and anxiety among patients recently diagnosed with breast cancer are high, with prevalence rates of depression, anxiety, or both reaching up to 50% in the year after diagnosis (Burgess, Cornelius, Love, Graham, Richards, & Ramirez, 2005; Alexander, Palmer & Stone, 2010). The treatment and follow up care for breast cancer patients can add to emotional distress even when curative therapies exist. Major depressive disorder (MDD) is one of the most prevalent mental health problems in the United States that is associated with considerable impairment in functioning, and it affects approximately 14.8 million adults annually with women 18-45 years of age accounting for the largest proportion of this group (National Institute of Mental Health, 2012; Holden, Belton, & Hall, 2015).

Depressive illness is projected to be the second leading cause of disability worldwide in 2020; the substantial public health and economic significance of depression is reflected by its considerable effect on health care utilization and great monetary costs: \$43 billion annually, of which \$17 billion represents lost days of work (Agency for Healthcare Research & Quality, 2016). African Americans, who suffer from depression are frequently underdiagnosed and

inadequately managed in primary care due to patient, physician, and treatment setting factors; patient factors include being poor, uninsured, restrictive insurance policies, biological-genetic vulnerability, non-responsiveness to traditional pharmacological interventions, and stigma (i.e., attitudes and perceptions of mental illness) (Bailey, Milapkumar, Barker, Shahid, & Shagufta, 2011). Healthcare professionals are providing care for a growing number of Latinas who are BCS and at greater risk for distress (Ashing-Giwa, Rosales, Lai, & Weitzel, 2013). Researchers and practitioners need to explore better ways to identify depression in minority populations particularly in those with breast cancer. Detection of depression can lead to better outcomes for minority patients. Depression education interventions, which focus on symptom recognition, stress reduction techniques, and behavioral activation to reduce barriers to treatment, show promise (Sanchez, Eghaneyan, & Trivedi, 2016).

Problem Statement

Breast cancer is the second most commonly diagnosed cancer in the United States and comprises the largest population of cancer survivors, estimated at 2.9 million women and accounting for 22% of all cancer survivors (Budhrani, Lengacher, Kip, Tofthagen, & Jim, 2014). Pain, nausea, and depression are the three most common treatment-related symptoms for breast cancer patients (Rose, Liu, Leake, Thind, & Diamand, 2009). Studies to evaluate the impact of breast cancer on minority patients can provide valuable information to help address issues related to the impact of cancer-related treatment. Ethnic minority breast cancer survivors (BCS) often experience a greater cancer burden than non-Hispanic white survivors, including poorer health-related quality of life (HRQoL), which encompasses physical, emotional, social, and spiritual well-being and role functioning (Miller, Ashing, Modeste, Herring, & Sealy, 2015). Furthermore, marginalized cancer patients may have limited awareness of strategies and resources to enhance

their health and well-being (Miller, Ashing, Modeste, Herring, & Sealy, 2015). When they do seek care, Latinos may present with more somatic symptoms than U.S. born whites and this situation may lead primary care providers to misdiagnose, administer unnecessary tests, and provide inadequate treatment (Gutnick et al., 2017).

A limited number of comparison studies have evaluated social and economic variables of the minority patient population as compared to non-minority patients with breast cancer and the subsequent detection and treatment of depression. The value of having such studies may help to provide extensive insight into ways to support the minority patient population of patients with breast cancer. Literature examining depression rates by ethnic group reveals different symptom presentation prevalence by group and more severe, disabling and under detected symptoms among racial and ethnic groups. However, few studies are available on depressive symptoms among Latinos and African American patients (Costas & Gany, 2013; Alegria et al., 2007; Eversley et al., 2005; Huang, Chung, Kroenke, Delucchi, & Spitzer, 2005).

Purpose

The purpose of our study was to utilize a retrospective chart review to examine ethnic differences and commonalties in the method of diagnosis and treatment of depression in female Latino, African American and Caucasian patients who were patients in an outpatient palliative care clinic.

Specific Aims

The aim of our retrospective chart review was to: examine differences and similarities in the method of diagnosis and treatment of depression in the Caucasian, Latino, and African American patient population who were patients in an outpatient palliative care clinic.

Research Questions and/or Hypothesis

1. Does the method of diagnosis (i.e. use of the PHQ-9 depression screening tool) and treatment of depression (i.e. pharmacologic or non-pharmacologic treatment) differ based on ethnicity? Hypothesis: Method of diagnosis and treatment will differ in the Latino and African American patients as compared to Caucasian patients;

2. What percentage of patients received pharmacologic treatments (antidepressants or other medications) for depression? What percentage of patients received non-pharmacologic treatment (supportive counseling and therapies that do not involve taking medications) for depression? Hypothesis: Minority groups are more likely to elect non-pharmacological treatment vs. pharmacological for depression than Caucasians.

Significance

Relatively few studies have examined the experiences of women who are African-American breast cancer survivors; black-white differences in breast cancer survival and if there are unmet needs among these survivors (Coughlin, Yoo, Whitehead, & Smith, 2015; Thompson, Littles, Jacob, & Coker, 2006; Haynes-Maslow, Allicock, & Johnson, 2015; Torres, Dixon, & Richman, 2015). Despite the challenges of receiving cancer treatment-directed therapies, a myriad of associated symptoms can pose challenges to minority patients with breast cancer.

African American women have lower breast cancer survival rates than non-Hispanic white women (Bradley & Wilk, 2014). They also tend to have more advanced stages of breast cancer at diagnosis and are less likely to receive recommended care. Possible explanations for this disparity include lack of health insurance and lower socioeconomic status (Bradley & Wilk, 2014).

Comorbid depressive and anxiety disorders, as well as more minor psychological distress, can impair self-care for acute and chronic medical conditions (such as adherence to medications, diet, and exercise) or care of others (Katon & Unuzer, 2013). Routine screening for depression can have an impact on the detection patterns and provide a way for health care providers to develop a proactive plan of care. One of the four overarching goals of the recently unveiled *Healthy People 2020* initiative is to achieve health equity, eliminate disparities and improve the health of all groups. Throughout the next decade, the *Healthy People 2020* initiative will assess health disparities in the U.S. population by tracking rates of death, chronic and acute diseases, injuries, and other health-related behaviors for subpopulations defined by race, ethnicity, gender identity, sexual orientation, disability status or special health care needs, and geographic location (U.S. Department of Health and Human Services, 2017).

This retrospective chart review has a meaningful contribution to nursing knowledge for several reasons. The specific exploration of differences and commonalities in the method and diagnosis and treatment of depression for Latino, African American, and Caucasian women with cancer helps to address healthcare disparities. It will also help to improve clinical practice by providing more insight for palliative care teams, oncologists, primary care providers, social workers and case managers about the challenges related to early detection of depression. This retrospective chart review can be utilized to develop practice-related protocols for diagnosis and

treatment of depression as well as to measure the effectiveness of the PHQ-9 Depression Screening Tool (DST).

Literature review

PubMed and MEDLINE were searched for articles published between 2010-2017 relating to depression in minority women with cancer utilizing the terms “breast neoplasms,” “depression,” “minority patients,” produced a total of 46 articles; utilizing the terms “Caucasian,” “breast neoplasms,” and “depression” produced a total of 30 articles; the total number of articles reviewed were 76 articles.

Inhestern et al. (2017) conducted a study to investigate anxiety and depression in working-age cancer survivors and associated factors. The study included a sample of 3370 cancer survivors diagnosed up to six years prior to the survey; approximately 40% of the survivors reported moderate to high anxiety scores and approximately 20% reported moderate to high depression scores (Inhestern et al., 2017). The evaluation of anxiety and depression together added depth to the research in that working-age cancer survivors did not have more depression than anxiety. Variables associated with lower anxiety and lower depression included better social support, family functioning and physical health (Inhestern et al., 2017). This study included a large sample size and provided an interesting depiction of how internal and external aspects of psychosocial functioning can add to the quality of life for cancer survivors.

Sanchez, Eghaneyan, & Trivedi (2016), conducted a study to implement a Depression Education Intervention (DEI) designed to increase literacy, to dispel myths about depression and its treatment among Hispanic patients. It also supported the feasibility of universal screening for depression utilizing the 9-item Patient Health Questionnaire (PHQ-9) via the iPad Depression

Screening application. The study aimed to examine the specific role of patient education as an intervention to increase engagement in depression treatment. This study utilized a unique approach to educating minority patients about depression and it can be applicable to the minority patient population. By participating in the DEI, patients were hypothesized to be more likely to have time to understand treatment options, participate in shared decision-making with their provider, and increase engagement in treatment of depression (Sanchez, Eghaneyan, & Trivedi, 2016).

Holden, Ramirez, & Gallion, 2013 conducted a cross-sectional study of 117 Latino breast cancer survivors to determine rates of depressive symptoms using the Center for Epidemiologic Studies Depression instrument (CES-D). The study compared demographic characteristics, reported barriers to health care recommendations, and prevalence of depressive symptoms between compliant and noncompliant subjects; a multivariate analysis the role of depressive symptoms in screening for other cancer among breast cancer survivors was evaluated (Holden, Ramirez, & Gallion, 2013). The results showed that depressive symptom rates are significantly higher among breast cancer survivors than the general population thus adding value to the evidence for establishing a depression screening protocol (Holden, Ramirez, & Gallion, 2013).

Avis, Levine, Case, Naftalis, & Van Zee, 2015 conducted a longitudinal study that identified groups of breast cancer survivors with depressive symptoms up to 24 months following diagnosis and described the characteristics of these trajectories. A total of 653 women completed questionnaires within 8 months of breast cancer diagnosis and approximately 20% of women had levels of depressive symptoms indicative of clinical depression (Avis et al, 2015).

This study supports the need for depression screening for breast cancer patients and the establishment of protocols that ensure adequate support for oncology patients.

Haynes-Maslow, Allicock, & Johnson (2015), conducted a study that included five focus groups with African American women to examine cancer survivor and caregiver support needs. Five themes emerged from the study: (1) a culture that discourages the discussion of cancer; (2) lack of support services for African American cancer survivors; (3) lack of support services for cancer caregivers; (4) need for culturally appropriate cancer resources, including resources targeted at African American women; and (5) aspects that were helpful to cancer survivors and caregivers, including connecting with other survivors and caregivers, and having strong social support network (Haynes-Maslow, Allicock, & Johnson, 2015). This study supports the need for further exploration of ways to develop resources to educate African American women with breast cancer.

Shepard, Llanos, Hurtado-de-Mendoza, Taylor, & Adams-Campbell (2013), conducted a comparison study of African American women with breast cancer compared to those women without breast cancer and found that African American women with breast cancer reported significantly greater levels of depression ($m=11.5$, $SD=5.0$) than African American women without breast cancer ($m=3.9$, $SD=3.8$) ($p<0.001$). It concluded that African American women with more advanced disease may require interdisciplinary approaches to cancer care. This study reflects the incidence of depression in African American women with breast cancer and may help to identify gaps in approaches to management of cancer care.

Umezama et al (2012), conducted a population-based survey with older women who were Latina, African American, and non-Hispanic with newly diagnosed breast cancer ($N=257$) to

explore the association between belief in divine control and coping. The study results revealed that divine control was positively related to approach coping (positive reframing, active coping, and planning) in all ethnic groups; belief in divine control was positively related to acceptance and negatively related to avoidance coping (denial and behavioral disengagement) among low-aculturated Latinas (Umezawa et al, 2012). This study helps to show similarities among ethnic groups and the value of interdisciplinary care with support through spiritual interventions for breast cancer patients.

Wells, Palinkas, Qiu, & Ell (2011), conducted a qualitative sub-study utilizing the Alleviating Depression among Patients with Cancer (ADAPt-C) tool and found that Latina patients acknowledged that they had dropped out of depression treatment for a variety of reasons, including dissatisfaction with treatment, poor patient-provider relations, logistical and financial barriers, cancer treatment commitments, and language barriers. This study supports the need to have barriers to detection and treatment addressed in minority patients. A key component involved in the detection and screening process is to consider the types of barriers that may exist for minority patients.

Maly, Liu, Leake, Thind, & Diamant (2010), conducted a longitudinal study of low-income women with breast cancer and found that though depression was the most common symptom reported amongst a sample of minority and Caucasian women, physician recognition of depression was lower in minorities (less-aculturated Latinas: 19% and Asian/Pacific Islander: 14%, $P < 0.001$) compared to whites (36%). The overall theme of this study correlates with the need for providers to have better ways to improve recognition of depression for minorities, the

disparities identified by the Healthy People 2020 initiative (U.S. Department of Health and Human Services, 2017).

In summary, the literature review helps to identify gaps in knowledge and provides a crucial analysis to support existing knowledge relating to depression and breast cancer in minority female patients. This paper will incorporate further evidence to support the cogency of exploring this topic.

Theoretical Foundation

Lanier & DeMarco (2015), explored the Theory of Silencing the Self (STS) and Social Ecological Model (SEM) which is used to recognize the complexities that can be described and tested more readily in HIV prevention and implementation science in African American women living with HIV. An emphasis was placed on the integration of individual experiences, environment, support systems, and cultural belief systems as they relate to the gender sensitive and culturally relevant experiences of women living with HIV known as silencing the self-behaviors (Lanier & DeMarco, 2015). The STS theory and SEM model both have a strong correlation to various aspects of the research on depression screening and education for minority women with breast cancer. This includes the commonalities such as fears of stigma associated with accepting treatment of depression.

The STS Theory was developed by Jack & Dill (1992) and confirmed by Lanier & DeMarco (2015) to be applicable to African American women living with HIV/AIDS. While demonstrating evidence of depression and negativity, the woman utilizing self-silencing holds the belief it is easier to conceal her feelings rather than revealing her authentic self, promoting repression and leading to depression (Lanier & DeMarco, 2015; Jack & Dill, 1992). In a similar

pattern, minority women with breast cancer may not show outward signs of depression and thus depression could be under-detected if a depression screening is not conducted in the palliative care clinic setting. Issues of isolation can certainly place a patient undergoing treatment for cancer at risk for depression. Lanier & DeMarco (2015), present a useful depiction of the overlap of the models, which can be applied to minority women with breast cancer.

The SEM supports the premise that protective health behaviors of individuals need to be considered in conjunction with their broader social contexts and influences including personal characteristics, interpersonal relationships, physical environment, and culture; overall, individual experiences, environment, support systems, and cultural beliefs are supported predictors of depression, HIV risk, and self-silencing (Lanier & DeMarco, 2015). Moreover, internal and external factors can impact the ability of patients to seek treatment for depression. The lack of support through education and understanding of depression can create a barrier to seeking treatment. Aspects of the STS theory and SEM model display similarities to the impact of depression on breast cancer in minority women. Patients may have overlapping social barriers that can lead to fears such as the stigma of seeking treatment for depression but the likelihood of accessing treatment can increase with early detection, through screening and education.

Methods

This retrospective chart review required the Institutional Review Board (IRB) approval from a large academic medical center in the southcentral part of the United States as well as the IRB approval from the George Washington University School of Nursing prior to implementation.

Research Design

A retrospective chart review was utilized for this study. There are two reasons for this type of design. First, the retrospective chart review was a good fit to answer the research questions; and second, the retrospective chart review allowed the researchers to complete the study within the defined timeframe. In addition, the PHQ-9 DST was easily accessible in some of the electronic medical records.

Study Population and Sample

The study patient population included African American, Latino, and Caucasian patients; patients ages 25 - 80 years; patients who had a confirmed diagnosis of breast cancer, and those who were seen in the outpatient palliative care clinic setting from 2014-2017. Additional aspects of the inclusion criteria for the study included: female patients; with diagnosis of breast cancer; newly diagnosed or relapsed breast cancer; new or established patients. The exclusion criteria included: patients with any other cancer diagnosis; patients of other races than mentioned above and male patients. Other patients excluded from the chart review were patients who had documented dementia or patients with documented pregnancy.

Sample Size

Assuming a moderate effect size and having access to 200 electronic charts from the outpatient palliative care clinic with the confidence level of 95% and confidence interval of 5; the sample size needed was projected to be 132 patient charts for the retrospective chart review. The researchers were not able to find 200 electronic charts that identified breast cancer patients, instead there were 161 electronic charts identified. After reviewing 161 electronic charts it was

found that only 80 charts met the criteria for the study. A total of 23 patients were of Asian or Native American decent. A total of 58 charts did not have enough documentation to conclude whether the depression screening tool was utilized.

Identifying and defining variables

Factors surrounding the diagnosis and treatment of depression in the minority patient population and the impact of breast cancer on the outcomes and treatment of depression include variables that are dependent, independent, demographic, and clinical as illustrated in Appendix A. The independent variables were the African American, Latino, and Caucasian patient populations. The dependent variables were non-pharmacologic and pharmacologic depression treatments.

Recruitment of Subjects

The principal investigator (PI) and the research nurse (RA) helped to identify the patients charts from the breast cancer diagnosis codes identified in the charts of random sample of African American, Caucasian, and Latino patients that were seen in the outpatient palliative care clinic. No formal consent was needed since this was a retrospective chart review and all patient identifiers were removed from the data before analysis per IRB approval an expedited review on September 1, 2017.

Setting

The setting for the study was the outpatient palliative care clinic in a busy urban setting of underserved and economically disadvantaged patients in a large city in the South-Central part of the United States. The clinic consisted of 4 clinic rooms that were in the cancer center. The

breast cancer patients were primarily followed by the palliative care physician and the palliative care clinical psychologist (PCCP) after being triaged by the palliative care nurse. The patients in this retrospective chart review were evaluated for distressing symptoms related to the diagnosis of breast cancer. We did not include charts of patients who were admitted into the hospital to receive care by the inpatient palliative care team.

Intervention

We reviewed the charts of 161 female patients (African American, Latino, and Caucasian) who were seen in the outpatient palliative care clinic for breast cancer with symptoms of depression. We searched the electronic medical record (EMR) of each patient to review the PHQ-9 DST results. The PHQ-9 DST is a self-report measure that asks if the subject had been bothered by the following problems in the past 2 weeks: (a) little pleasure or interest in doing things, (b) feeling down, depressed, or hopeless, (c) sleeping too little or too much, (d) feeling tired or having little energy, (e) poor appetite or overeating, (f) feelings of worthlessness or guilt, (g) concentration problems, (h) psychomotor retardation or agitation, and (i) thoughts of suicide ('Thoughts that you would be better off dead or hurting yourself in some way'); subjects were asked to rate how often each symptom occurred: 0 (not at all), 1 (several days), 2 (more than half the days), or 3 (nearly every day) (Fann et al., 2009).

Depression severity was calculated by using the total PHQ-9 score: mild depression (5-9), moderate depression (10-14), moderately severe depression (15-19) and severe depression (20-27). (Randall, Voth, Burnett, Bazhoveva, & Bardell, 2013). The PCCP in the palliative care clinic had extensive training for use of the PHQ-9 depression screening tool and thus calculated the scores accordingly. Patients with scores greater than mild depression (5-9), were selected for

the retrospective chart review if all the inclusion criteria was met for the sample (refer to study population and sample section). According to Hinz et al (2016), the reliability for the PHQ-9 DST was found to be good ($\alpha=0.84$) and it was confirmed for detecting depression in cancer patients.

Instrument/Measurements

The demographic data collected included: age (in years, mean), marital status (married or single; single includes divorced), health insurance (Medicaid, Medicare, private, none), disease stage (II, III, IV), and breast cancer procedure (chemotherapy, radiation, surgery; surgery includes lumpectomy or mastectomy). For this retrospective chart review, we considered the following associated symptoms (pain, fatigue, nausea, vomiting, and anxiety) while reviewing the electronic charts for the diagnosis and treatment of depression. The results of the PHQ-9 DST were documented in the study (positive for depression, yes or no) as well as the types of treatment for depression (pharmacologic or non-pharmacologic). Pharmacologic treatments for depression were as follows: selective serotonin reuptake inhibitor (SSRI), serotonin-norepinephrine reuptake inhibitor (SNRI), tricyclic antidepressant (TCA), other medications, which includes benzodiazepines (utilized, yes or no). Non-pharmacologic treatments for depression were as follows: cognitive behavioral therapy (CBT), sleep hygiene, mindfulness therapy, spiritual support, caregiver support, reminiscence therapy, other (utilized, yes or no).

Data Collection Procedure

The RA and PI worked over 3 weeks to collect the data from the EMR of the patients. The data were kept on a secure excel spreadsheet once collected from the EMR. After the retrospective chart review was completed, the RA and the PI conducted a statistical analysis of

the data utilizing the Chi Square Tests. The researchers utilized the SPSS statistics software to analyze the data and calculate the descriptive statistics comparing the 3 groups of breast cancer patients with each variable. The results of each group's data analysis were then added to the table to reflect the following: All 3 groups, Caucasian, African American and Latino.

Results

Characteristics of the Sample

A total of 80 charts were reviewed retrospectively. The mean age of the sample of participants was 51.7 years. 36.25% patients in the study were African American (N=29) followed by 35% Latino (N=28) then 28.75% Caucasian (N=23). The characteristics of the sample showed that 53% of the breast cancer patients were single (N=43), 36.3% had unknown religious status (N=29), 24% were Catholic (N=19) and 60% had Medicaid insurance (N=48). 61.3% of the patients had stage IV breast cancer (N=49). A total of 55% of the patients had left sided breast cancer (N=44). In terms of advancement of breast cancer, the data from the 3 groups of breast cancer patients showed that 58.7% had bone metastasis (N=47), followed by 36.3% brain metastasis (N=29), 35% lung metastasis (N=28), and 25% liver metastasis (N=20), respectively. A total of 92.5% of the patients had breast cancer surgery (N=74) and 68.8% chemotherapy (N=55) while 50% of the patients had radiation (N=40). Further review of the data revealed that the two most prevalent symptoms reported by all patients were fatigue (91.3%, N=73) and pain (90%, N=72). The least reported symptom for all patients was vomiting (41.3%, N=33). There were no statistical differences between the 3 groups of patients in terms of the types of treatments for cancer. See Table I. Race and Age and Table II. Characteristics of the Sample.

First, we hypothesized that the method of diagnosis and treatment will differ in the Latino and African American patients as compared to Caucasian patients. The data analysis for the utilization of the PHQ-9 DST revealed that the rate of positive screenings for depression was 52.2% Caucasian (N=12), 58.6% African American (N=17), and 60.7% Latino (N=17); the percent of positive PHQ-9 screenings for all groups was 57.5% (N=46). Based on the PHQ-9 DST the Latino patients had the highest rate of depression and the Caucasian patients had the lowest rate of depression. There were no statistically significant differences in the PHQ-9 DST results within the 3 groups of patients. Among the 80 patients, 33.8% did not have any pharmacologic treatment (N=27) and 66.3% had at least one kind of pharmaceutical treatment (N=53). The study also showed that 5% of the patients did not receive any non-pharmacologic treatments (N=4) while 95% had some form of pharmacologic treatment (N=76). For patients who received pharmacologic treatment the difference was not statistically significant, $X^2=3.55$, $p=0.170$ and for the non-pharmacologic treatment, we did not run a statistical analysis due to the low variance as 95% of the patients had received some form of non-pharmacologic treatment.

Second, we hypothesized that minority groups are more likely to elect non-pharmacological vs. pharmacological treatment for depression than Caucasians. The data analysis revealed that the most frequently utilized non-pharmacologic measures among all 3 groups were caregiver support (80%, N=64), spiritual support (68.8%, N=55), and cognitive behavior therapy (61.3%, N=49). All groups of breast cancer patients had lower use of pharmacologic measures selective serotonin reuptake inhibitors (46.3%, N=37), serotonin norepinephrine reuptake inhibitors (13.8%, N=11), tricyclic antidepressants (5%, N=4), and other medications (22.5%, N=18). The results showed that the least utilized non-pharmacologic

measures were sleep hygiene (30%, N=24) and reminiscence therapy (11.3%, N=9). African American patients appeared to have utilized non-pharmacologic measures more than the 2 other groups. Specifically, 82.8% used caregiver support (N=24) and 79.3% of African Americans utilized spiritual support (N=23) the most. Although not significant, the effect size for the spiritual support was 0.30, indicating a moderate relationship between race/ethnicity and spiritual support. The effect sizes for Cognitive Behavioral Therapy (0.18), sleep hygiene (0.15), Reminisce Therapy (0.14), and caregiver support (0.10) indicate there were small effects between race/ethnicity and the utilization of these therapies. Overall, both minority groups appeared to have greater utilization of non-pharmacologic measures than the Caucasian group, but the results were not statistically significant. See Table. IV. Non-pharmacologic Methods for Treating Depression. 46.3% of the patients utilized selective serotonin reuptake inhibitors (SSRIs) (N=37) followed by 22.5% of other medications (N=18) which included benzodiazepines and mood stabilizers. 62.1% of African American patients received a SSRI (N=18) as compared to 39.1% of Caucasian patients (N=9) and 35.7% of Latino patients (N=10). All 3 groups of breast cancer patients had relatively lower use of pharmacologic measures than non-pharmacologic measures. See Table V. Pharmacologic Treatment and Methods for Treating Depression.

Discussion

African American patients were the largest cohort in the study followed by Latino patients and Caucasian patients, respectively. This demographic was expected as the setting was in a large urban hospital with underserved and economically disadvantaged patients in the South-Central part of the United States. Additional information about the characteristics of the study

sample revealed that most of the patients had left-sided stage IV breast cancer with metastasis to the bones. The patients were mostly single (divorced or never married) and had Medicaid insurance. The religious background of several patients was listed as ‘unknown’. The most common symptom among all 3 groups of breast cancer patients was pain and fatigue which are common symptoms seen in various types of stage IV cancers.

The method of treatment for depression differed among the 3 groups of patients, but there were no statistically significant differences. All 3 groups of breast cancer patients had relatively lower use of pharmacologic measures than non-pharmacologic measures, which supports the hypothesis. The utilization of non-pharmacologic measures included options that supported the family as well as the patient (i.e. family support and spiritual care). There were no statistically significant differences in the utilization of non-pharmacologic versus pharmacologic treatment of depression within the 3 breast cancer groups.

The PHQ-9 DST scores were not consistently recorded in the EMR, thus impacting the ability to fully analyze the method of diagnosis of depression for all patients. One reason for this missing documentation could have been related to time constraints with collecting the scores for patients, as well as clinicians choosing to treat the breast cancer patients for depression based on clinical presentation. There was mention of depression screenings being positive in the providers’ notes, but the scores were not consistently recorded. Considering the missing documentation, it was difficult to include all the initial patients selected from the 161 charts.

Study Limitations

The study had several limitations. One limitation was the sample size of 80 patients, as solely breast cancer patients were part of the inclusion criteria. The inclusion criteria posed a

challenge with accomplishing the projected sample size of 132. Future studies should consider inclusion of patients with other types of cancer. This would likely increase the potential of having statistically significant findings within the groups as well as to introduce differing aspects of care related to each type of cancer diagnosis. The study period could have included data collected over 5 or more years. It would also be interesting to explore the cancer patient population from an oncology clinic setting at a large academic medical center. Another limitation was the inconsistent documentation of the PHQ-9 DST, which limited the sample size and ability to analyze the data for this study.

Implications/Recommendations for Practice, Policy, and Research

Future implications to practice in the palliative care clinic setting is to include more effective and objective screening for depression, including the exploration of self-reporting of depression scores for patients with cancer. Data collection for depression screening must become a seamless process for the staff members. Now in the age of advancements in nursing informatics templates can be developed to allow for easy and quick documentation of the PHQ-9 DST in the EMR. Furthermore, the exploration of grant funding to supply Health Insurance Portability and Privacy Act (HIPPA) protected iPads for patients to enter their own responses to the PHQ-9 DST may help to provide consistent documentation of scores. Without consistent documentation of depression screening scores, it can be challenging to plan effective ways to support breast cancer patients who are being treated for depression.

The effectiveness of pharmacologic versus non-pharm interventions could be measured over time with more consistent screening for depression. In addition, the value of non-pharmacologic measures should not be underestimated in the palliative care clinic setting.

Supportive services were utilized by the patients in this study and many of these services can be provided by a chaplain, social worker, or clinical psychologist. These services are valuable to patients with stage II to IV cancers who undergo treatment with curative measures as well as palliative measures. Future implications to practice should include the exploration of whether the non-pharmacologic measures are also accessible in oncology clinics for patients with advanced cancer. Further research on patients from the oncology clinic setting with advanced stage cancers of all other types should include the exploration of both pharmacologic and non-pharmacologic measures.

Conclusion

The outpatient palliative care clinic can help to provide supportive care and management of symptoms for female breast cancer patients that are at risk for depression by implementing pharmacologic and non-pharmacologic measures. While this study was conducted on a small sample (n=80) of patients, the 3 groups of breast cancer patients were found to have commonalities in the types of support provided for treatment of depression, as well as the symptomology related to breast cancer. The method of treatment for depression differed among the female breast cancer patients at the palliative care clinic, but there were no statistically significant differences between the African American, Caucasian, and Latino patients. Overall, this study will add to improvement to the palliative care clinic setting by supporting the need for EMR templates to assist with consistent documentation of the PHQ-9 DST. The study will help support the importance of having access to non-pharmacologic measures in the palliative care clinic setting. Patients may find non-pharmacologic measures just as advantageous as pharmacologic measures.

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**Appendix A. Variables related to depression screening and education in minority women
with breast cancer**

Variable Name	Variable Type and Form	Theoretical Descriptive Definition	Operational Definition
Independent Variable	Minority Non-Minority Patients	Patient race/ethnicity	African American Caucasian Latino
Dependent	Depression Treatment	Pharmacological and non-pharmacological methods	Medications, Non-medication treatments and supportive care
Diagnosis	Clinical Explanatory	Diagnosis of patient	Breast cancer (invasive, metastatic, relapsed)
Age	Demographic/explanatory Interval Count	Patient Age	Patient age in years 25-80 years

Table I. Patients' Race and Age

Race	N	Mean	Std. Deviation	Age Minimum	Age Maximum
White	23	51.6087	11.51181	28.00	72.00
Black	29	53.8276	9.00821	32.00	69.00
Hispanic	28	49.6071	11.74210	27.00	77.00
Total	80	51.7125	10.77056	27.00	77.00

Table II. Characteristics of the sample

Variable	All Groups	Caucasian	African American	Latino	Statistics: X²	P Value	Effect Size
Marital Status					3.8	0.15	0.219
Married	37 (46.3%)	8 (34.8%)	12 (41.4%)	17 (60.7%)			
Single	43 (53.8%)	15 (65.2%)	17 (58.6%)	11 (39.3%)			
Religion							
Baptist	13 (16.3%)	2 (8.7%)	11 (38%)	0 (0.0%)			
Catholic	19 (24%)	4 (17.4%)	1 (3.4%)	7 (24.1%)			
Christian	12 (15%)	0 (0.0%)	7 (24.1%)	5 (18%)			
Pentecostal	2 (2.5%)	1 (4.3%)	1 (3.4%)	0 (0.0%)			
Presbyterian	1 (1.3%)	1 (4.3%)	0 (0.0%)	0 (0.0%)			
Episcopal	1 (1.3%)	1 (4.3%)	0 (0.0%)	0 (0.0%)			
Scientist	1 (1.3%)	0 (0.0%)	0 (0.0%)	1 (3.6%)			
Methodist	1 (1.3%)	0 (0.0%)	1 (3.4%)	0 (0.0%)			
Unknown	29 (36.3%)	13 (56.5%)	8 (28%)	8 (29%)			
None	1 (1.3%)	1 (4.3%)	0 (0.0%)	0 (0.0%)			
Health Insurance							
Medicaid	48 (60%)	15 (65.2%)	15 (51.7%)	18 (64.3%)			
Medicare	17 (21.3%)	6 (26.1%)	7 (24.1%)	4 (14.3%)			
Private	3 (3.8%)	1 (4.3%)	2 (6.9%)	0 (0.0%)			

None	12 (15%)	1 (4.3%)	5 (17.2%)	6 (21.4%)			
Disease Stage					6.32	0.177	0.199
II	13 (16.3%)	7 (30.4%)	4 (13.8%)	2 (7.1%)			
III	18 (22.5%)	6 (26.1%)	6 (20.7%)	6 (21.4%)			
IV	49 (61.3%)	10 (43.5%)	19 (65.5%)	20 (71.4%)			
Location					1.10	0.58	0.12
Left	44 (55%)	11 (47.8%)	18 (62.1%)	15 (53.6%)			
Right	36 (45%)	12 (52.2%)	11 (37.9%)	13 (46.4%)			
Metastases							
Brain Metastases					1.16	0.60	0.12
Yes	29 (36.3%)	9 (39.1%)	12 (41.4%)	8 (28.6%)			
No	51 (63.8%)	14 (60.9%)	17 (58.6%)	20 (71.4%)			
Lung Metastases					4.04	0.13	0.22
Yes	28 (35%)	11 (47.8%)	11 (37.9%)	6 (21.4%)			
No	52 (65%)	12 (52.2%)	18 (62.1%)	22 (78.6%)			
Bone Metastases					3.13	0.21	0.20
Yes	47 (58.7%)	11 (47.8%)	16 (55.2%)	20 (71.4%)			
No	33 (41.3%)	12 (52.2%)	13 (44.8%)	8 (28.6%)			
Liver Metastases					0.37	0.857	0.06
Yes	20 (25%)	6 (26.1%)	8 (27.6%)	6 (21.4%)			
No	60 (75%)	17 (73.9%)	21 (72.4%)	22 (78.6%)			
Cancer Treatments							
Chemotherapy					2.65	0.27	0.18
Yes	74 (92.5%)	23 (100%)	26 (89.7%)	25 (89.3%)			
No	6 (7.5%)	0 (0.0%)	3 (10.3%)	3 (10.7%)			
Radiation					3.63	0.16	0.21
Yes	40 (50%)	9 (31.9%)	13 (44.8%)	18 (64.3%)			
No	40 (50%)	14 (60.9%)	16 (55.2%)	10 (35.7%)			

Surgery					3.42	0.18	0.21
Yes	55 (68.8%)	19 (82.6%)	17 (58.6)	19 (67.9%)			
No	25 (31.3%)	4 (17.4%)	12 (41.4%)	9 (32.1%)			
Symptoms Reported							
Anxiety					0.232	0.925	0.04
Yes	61 (76.3%)	17 (73.9%)	22 (75.9%)	22 (78.6%)			
No	19 (23.8%)	6 (26.1%)	7 (24.1%)	6 (21.4%)			
Pain					1.80	0.375	0.16
Yes	72 (90%)	19 (82.6%)	27 (93.1%)	26 (92.9%)			
No	8 (10%)	4 (17.4%)	2 (6.9%)	2 (7.1%)			
Nausea					0.21	0.92	0.04
Yes	53 (66.3%)	15 (65.2%)	20 (69%)	18 (64.3%)			
No	27 (33.8%)	8 (34.8%)	9 (31%)	10 (35.7%)			
Vomiting					1.61	0.45	0.14
Yes	33 (41.3%)	10 (43.5%)	14 (48.3%)	9 (32.1%)			
No	47 (58.7%)	13 (56.5%)	15 (51.7%)	19 (67.9%)			
Fatigue					1.8	0.43	0.145
Yes	73 (91.3%)	20 (87%)	28 (96.6%)	25 (89.3%)			
No	7 (8.8%)	3 (13%)	1 (3.4%)	3 (10.7%)			

Note: Effect size is measured by Cramer's V (Reference for effect size: small=0.1; Moderate=0.3; Large=0.5) Note: statistics reported are Fishers Exact Test

Table III. Depression Screening Result

Variable	All Groups	Caucasian	African American	Latino	Statistics X ²	P Value	Effect Size
Depression Screening Result					0.44	0.82	0.07
Yes	46 (57.5%)	12 (52.2%)	17 (58.6%)	17 (60.7%)			
No	34 (42.5%)	11 (47.8%)	12 (41.4%)	11 (39.3%)			

Note; Effect size is measured by Cramer's V

(Reference for effect size: small=0.1; Moderate=0.3; Large=0.5)

Note: statistics reported are Fishers Exact Test

Table IV. Non-pharmacologic Methods for Treating Depression

	All Groups	Caucasian	African American	Latino	Statistics X ²	P value	Effect Size
Spiritual support					6.3	0.35	0.30
Yes	55 (68.8%)	11 (47.8%)	23 (79.3%)	21 (75%)			
No	25 (31.3%)	12 (52.2%)	6 (20.7)	7 (25%)			
Cognitive Behavioral Therapy					0.252	0.275	0.18
Yes	49 (61.3%)	11 (47.8%)	20 (69%)	18 (64.3%)			
No	31 (38.8%)	12 (52.2%)	9 (31%)	10 (35.7%)			
Sleep Hygiene					1.85	0.40	0.152
Yes	24 (30%)	7 (30.4%)	11 (37.9%)	6 (21.4%)			
No	56 (70%)	16 (69.6%)	18 (62.1%)	22 (78.6%)			
Mindfulness Therapy					0.402	0.83	0.068
Yes	27 (33.8%)	7 (37.9%)	11 (37.9%)	9 (32.1%)			
No	53 (66.3%)	16 (69.6%)	18 (62.1%)	19 (67.9%)			
Caregiver Support					0.797	0.70	0.10
Yes	64 (80%)	17 (73.9%)	24 (82.8%)	23 (82.1%)			
No	16 (20%)	6 (26.1%)	5 (17.2%)	5 (17.9%)			
Reminisce Therapy					1.54	0.462	0.139
Yes	9	1	4	4			

	(11.3%)	(4.3%)	(13.8%)	(14.3%)			
No	71 (88.7%)	22 (95.7%)	25 (86.2%)	24 (85.7%)			

Note; Effect size is measured by Cramer's V

(Reference for effect size: small=0.1; Moderate=0.3; Large=0.5)

Note: statistics reported are Fishers Exact Test

Table V. Pharmacologic Treatment and Methods for Treating Depression

Variable	All Groups	Caucasian	African American	Latino	Statistics X ²	P Value	Effect Size
Pharmacologic Treatment					3.55	0.170	0.211
Yes	53 (66.3%)	14 (60.9%)	23 (79.3%)	16 (57.1%)			
No	27 (33.8)	9 (39.1%)	6 (20.7%)	12 (49.2%)			
selective serotonin reuptake inhibitor (SSRI)					4.54	0.98	0.241
Yes	37 (46.3%)	9 (39.1%)	18 (62.1%)	10 (35.7%)			
No	43 (53.8%)	14 (60.9%)	11 (37.9%)	18 (64.3%)			
serotonin-norepinephrine reuptake inhibitor (SNRI)					0.74	0.71	0.093
Yes	11 (13.8%)	3 (13%)	3 (10.3%)	5 (17.9%)			
No	69 (86.3%)	20 (87%)	26 (89.7%)	23 (82.1%)			
tricyclic antidepressant (TCA)					2.44	0.215	0.20
Yes	4 (5%)	0 (0%)	3 (10.3%)	1 (3.6%)			
No	76 (95%)	23 (100%)	26 (89.7%)	27 (96.4%)			
Other Medications					0.63	0.76	0.084
Yes	18 (22.5%)	6 (26.1%)	7 (24.1%)	5 (17.9%)			
No	62 (77.5%)	17 (73.9%)	22 (75.9%)	23 (82.1%)			

Note: Effect size is measured by Cramer's V (Reference for effect size: small=0.1; Moderate=0.3; Large=0.5) Note: statistics reported are Fishers Exact Test