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Research Article

Anxiety and Depression among Breast Cancer Patients Undergoing Treatment in Ghana

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ABSTRACT

Breast cancer patients undergoing radiotherapy often experience severe levels of anxiety and depression within the African context. There is a gap in the research literature from Africa, particularly Ghana, with few studies focusing on depression among patients undergoing radiation treatment. The purpose of the study was to find various interventions for depression and anxiety among breast cancer patients in Ghana. A mixed method study examined breast cancer patients undergoing radiotherapy and their responses through a concurrent triangulation involving an interview with selected professional and a detailed patient survey. In all, 100 patients between the ages of 20-89 completed a questionnaire and individual interviews were held with 6 professionals with a minimum of 5 years of work experience. Themes were generated through open coding of the interview data, while multiple regression was performed to determine the relationship between depression and anxiety with the independent variables. In all, 89% had no family history of breast cancer, and the majority (55%) had the disease duration of one to three years. Almost 95% of patients with breast cancer had anxiety and depression in different categories. This included hair loss, discolored finger nails, cost of treatment, and fear of the unknown. Age and monthly income of patients were statistically significant in predicting the anxiety and depression among the patients. Coping mechanisms are essential for all patients undergoing treatment. This study's implications will lead to positive change when all stakeholders assist in implementing measures to promote coping strategies for breast cancer patients in Ghana.

Keywords: Anxiety, coping, depression, experience, intervention.

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INTRODUCTION

Anxiety is the feeling of fear, distress, and uneasiness of an imminent endangerment while depression is a symptom expressed through tireless sensations of hopelessness, unhappiness, lack of concentration, lack of energy, and insomnia, especially with a cancer diagnosis (Healthline, 2015). Breast cancer is the most common cancer among women globally according to Ward *et al.*, (2015) and the World Health Organization (WHO) predicted it as the most likely reason a woman will die of cancer (WHO, 2007). WHO (2013) in their 2013 global estimates indicated that cancer of the breast was common in both the developing and the developed world with an estimated average of over 508 000 deaths every year. According to studies done in Ghana by

Wiredu & Armah, (2006) and Biritwum & Amaning, (2000) breast cancer is the common cause of mortality and most hospital admissions among Ghanaian women.

Several studies have demonstrated that patients are usually at greater risk of developing psychological distress leading to some level of anxiety and depression (Schetter and Tanner 2012; Vin-Raviv *et al.*, 2015). Among the study population, anxiety and depression are the most dominant symptoms that are usually under predicted and undertreated from observations. Breast cancer treatment and its related cost are financially straining for patients and their caregivers in Ghana (Kyei *et al.*, 2015). Referrals are delayed unnecessarily due to patient's noncompliance and cost of treatment amongst other things (Arvidsdotter *et al.*, 2015).

According to studies by Coolen, (2012) and Institute of Medicine Committee on Psychosocial Services to Cancer

Patients/Families in a Community Setting, (2008) clients receiving treatment have fears and concerns regarding mortality. Other studies have suggested that families do suffer from the effects of depression in patients undergoing treatment (Watts *et al*, 2015; Birnie *et al*, 2010) and the phase of emotional shock and disbelief is common as part of the patient's psychological characteristics after a diagnosis is made, followed by anxiety. According to Joffe *et al.*, (2012) anxiety and depression reduces the lifespan of patients, affects their overall quality of life, lead to increased mortality, and disturbs their daily functioning.

What is missing in the literature is studies that focuses on determining levels of anxiety and depression, and how this assessment impact treatment outcome for breast cancer patients undergoing radiotherapy. The aim of the study was to find various interventions for anxiety and depression among the selected patients in Ghana focusing on the on health professionals' views of their own practice and the response they receive from patients. According to a study by Kyei, *et al.*, (2015) the majority of breast cancer patients undergoing treatment at the study site were dissatisfied with the radiation treatment they received. This unsatisfactory nature was evidenced by the various degrees of complaints leading to intensification in the patients' levels of anxiety and triggering many levels of depression. This study elucidated the various interventions required to minimize depression and anxiety among breast cancer patients undergoing radiation therapy in Ghana.

MATERIALS AND METHODS

Study design: The study approach was a mixed method design to gather both quantitative and qualitative data. Data were collected from selected patients and staff included coping strategies, and approaches for management.

Ethical consideration: This study has been reviewed by the ethics and protocol review committee of a higher institution and the head of unit of the study site and has been performed in accordance with the ethical standards laid down in an appropriate version of the 2000 Declaration of Helsinki as well as the Declaration of Istanbul 2008. All persons gave their informed consent prior to their inclusion in the study. Any details that sought to disclose the identity of the subjects under the study was omitted. The Institutional Review Board (IRB) of the Walden University in the United States assessed the research as meeting the requirements and complying with standards for data collection in the hospital in Ghana. Approval was granted (no: 06-07-17-0475898) and was further accepted by the Oncology Unit in Ghana.

Participants selection: The qualitative data were interviews with selected staff who worked with patients (radiation therapists (RT), doctors (D), and nurses (N)). The quantitative data was a descriptive survey with questionnaire using a sample of 100 participants. The selection of the professional participants was from a pool of over 30 staff with a minimum work experience of 5 years. The reason was that with 5 years' professional experience, the staff should be able to assess patients thoroughly, manage treatment symptoms, and

perform complete treatment for patients. A minimum sample calculation was used for the selection of the patients with $n = [Z^2p(1-p)]/E^2$, where, n = minimum sample size, p = population proportion of the breast cancer patients available during the time of the study (195/400), Z = confidence level of 95%, and E = the maximum allowable error (5%). By the calculation, $n = 90$ and the selected sample size was 100 for the period.

Location: The study took place at the oncology department in Accra, Ghana between the months of June and August 2017. This site was chosen because it serves a total of 70% of all cancer cases seen in the country (Kyei *et al*, 2015). The use of convenience sampling was because it offered the authors access to both participants.

Instrument and data collection: A semi-structured questionnaire that was a modified version of Patient Health Questionnaire and Depression Anxiety Stress Scale was used to collect data from the patients whereas interviews were used to collect data from the professionals. Administration of the questionnaire took place in the control room where patients are called to before the commencement of their procedure. Patient demographics such as the age, sex, education, marital status, and income level were measured and used as independent variables. The period of treatment, waiting times, type of cancer, and the remedy for the anxiety and depression experienced were measured as well. Open-ended questions through conversations in a format of mutual understanding occurred among the professionals.

The theoretical basis for this study was the Health Action Process Approach (HAPA) which is a psychosomatic change theory of health behavior developed by Schwarzer, (2008). The HAPA postulated two distinct stages, a motivation or pre-intentional phase and a volition or self-regulatory or action phase. The HAPA was used to predict, describe, and explain breast cancer treatment processes that lead to anxiety and depression.

Data Analysis: Interview data were analyzed using the NVivo version 11 for Mac by QSR International through transcribing, finding emerging themes, coding, and making connections to the focus of the study. The quantitative data was exported into Microsoft excel and analyzed using IBM SPSS Statistics (Version 22, Armonk, NY, USA) to evaluate the relationships between the responses of breast cancer patients on their treatment and their level of anxiety and depression. Multiple regression analyses on the quantitative data were performed. Responses in frequencies for the questionnaire were determined and presented in the forms of tables and graphs.

RESULTS

The results were in two categories, the qualitative data through interviews from the 6 professionals (N₁, N₂, RT₁, RT₂, D₁ and D₂) and quantitative through questionnaires from the 100 patients.

Qualitative Data

rest of the variables. The beta value for disease duration, marital status, and tribe indicate that anxiety and depression on treatment increases respectively holding all other variables constant (0.76, 0.157, 0.160) showing a positive relationship. The VIF is less than 3 for all variables, meaning that there is a positive correlation. Hence, the assumptions are met, and therefore the conclusion is that the independent variables are not confounding. All other things equal, these lower levels of VIF, indicate a positive effect on anxiety and depression associated with a multiple regression analysis.

Table 1: Regression Analysis for Anxiety and Depression compared with key Variables

A. Descriptive Statistics			
	Mean	Std. Deviation	N
Anxiety and depression on treatment	14.36	4.595	94
Age	51.32	13.641	94
Weight	72.76	16.063	94
Gender	2.00	.000	94
Tribe	2.49	1.515	94
Marital status	2.19	.766	94
Employment status	2.38	1.496	94
Monthly income	1.21	1.502	94
Disease duration	2.22	.658	94
Family history	1.93	.302	94

Beneath the table lets add $R=0.078$, Age ($B = -0.094, \beta = -0.280, t = -0.269, p < 0.05$), and monthly income ($B = -0.923, \beta = -0.302, t = 2.081, p < 0.05$)

R (0.397) was found to be less than 0.5, indicating that there is a change in the model. The alternate hypothesis is therefore accepted since the independent variables significantly predicted anxiety and depression. An ANOVA was conducted

for anxiety and depression as the dependent factors and demographic as the predictors. A greater percentage (30.7%) of the patients indicated meditation as their intervention while few (9.4%) were of the view that their doctors referred them for counseling (Figure 2). Anxiety and depression were evident during treatment and daily life of patients (Table 2).

Table 2 Treatment and life frequencies of patients undergoing Radiotherapy

	Responses	
	N	Percent
Anxiety and Depression on life		
not at all	313	17.4%
several days	778	43.3%
more than half the days	556	30.9%
nearly everyday	150	8.3%
Total	1797	100.0%
Anxiety and Depression on Treatment		
not at all	46	5.1%
several days	414	46.1%
more than half the days	327	36.4%
nearly everyday	111	12.4%
Total	898	100%

DISCUSSION

The study sought to address a gap in the literature by identifying significant relationships between the responses of breast cancer patients undergoing radiotherapy treatment and their various levels of anxiety and depression, as well as their treatment responses. The experiences of patients as reported by the participants cut across complaints from patients, interventions prescribed, and management. Patients also responded to the effect of breast cancer, and the impact of cost on their treatment leading to their anxiety and depression. Interventions as well as the management cover both the interviews and the survey.

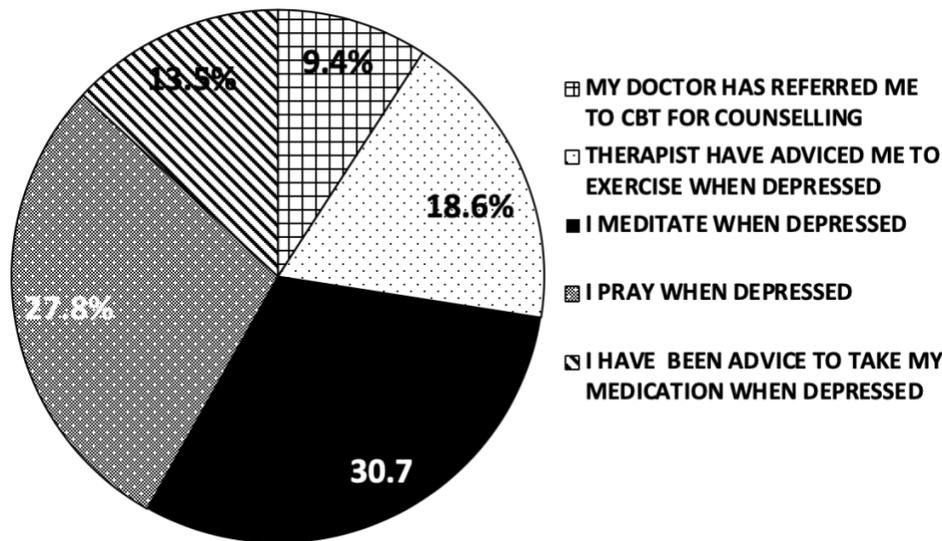


Figure 2. Interventions of anxiety and depression among patients on treatment

The interviews with the professionals did support the responses from the patient participants. These supports were in three sections on the experiences of breast cancer patients undergoing and how it affected breast cancer patients undergoing treatment. The first was on the complaints that directly affected daily life of the patients. These complaints covered the burden of disease, fear of the unknown, and cost of treatment. This was evident in the responses by the patients on their daily treatment and life in general. The second and the third were interventions and management that were prescribed and suggested by professionals and patients respectively.

Almost 95% of patients with breast cancer had anxiety and depression in different categories (Table 2 and 3). This result was very high compared to studies conducted Baqutayan, (2012) and Hassan *et al.*, (2015). The first explanation could be the late stage of presentation, the high cost of treatment, lack of financial support, lack of insurance, inadequate family support, family dejections, ignoring by spouses, separation, divorce, fear, and the fact that some think it is communicable as described by the professional participants during the interviews. The burden also included the loss of hair, discolored finger nails, and various issues with cytotoxic drugs. Hair loss (alopecia), because it is visible to others, can cause considerable distress for patients. The crown of hair is part of the patient's self-image and can affect the patient's confidence. A recommended solution suggested by the Breast Cancer Network Australia (2011) was that patients have to be prepared thoroughly by the caregiver before the treatment, and individual patients should talk about it with others such as family and friends. Counseling and consent prior to treatment should include issues of disfigured and darkening of their fingers and nail beds. This education could help patients cope with the changes that occur (Canadian Cancer Society, 2017).

Another report from one of the participants was the treatment related fear exhibited by patients. Treatment of the breast and lymphatic drainage will undoubtedly involve some vital organs such as lung and heart. However, the treatment plan with proper calculation of the doses demonstrates how much each organ within the treated field is receiving and ensures that reference tolerance levels of each organ at risk is respected. All these will have to be communicated properly to patients during counseling and consent to avoid situations and comments from patients such as these.

According to the professional participants, the burden of the disease resulted from the high financial commitment from patients which is one of the indicators of anxiety and depression. Treatment cost of breast cancer ranges between 1,500 - 3,000 USD and the reports from the study indicated that such money was too high for average patient. Again, the overall treatment cost could be much higher when chemotherapy and hormonal therapy are prescribed or combined with the radiotherapy. With findings of about 41% of patients without any salary or income and a further 21% with less than 300 USD, the cost of treatment was a burden and affected patient level of anxiety and depression. These findings were in agreement with a study by Opoku *et al.*, (2012) which indicated that financial burden could significantly affect the overall treatment outcome for patients undergoing treatment.

Various intercessions made by the professional participants for patients while they were on treatment were reassurances, explanations of the entire treatments and side effects, and counseling. Other interventions were encouragement, advice (such as doing something they love doing, get relief from work, and relaxation), monitoring, coping, debunking any negative pieces of information from them, prescriptions for medications, and on few occasions, referring to counselors outside the department. These interventions were confirmed by the patients undergoing treatment although they indicated very little information on counseling and medication from their caregivers to help them cope with the treatment (Figure 2). As a result of this, many of the responses indicated that patients resorted to meditation and prayers for management of their anxiety and depression. The results show the importance of religiosity and spirituality in coping with a cancer diagnosis within the African context (Ikeoluwapo *et al.*, 2016). Another comment from patients as reported by the participants was feeling fatigued after treatment, and more apprehensive after explanations. Patients become less anxious when they know what is wrong with them, how treatment will be delivered when proper explanations on the side effects is given and the more importantly what to do as and when an issue arises. Both participants involved in the study indicated the need for counselors or psychotherapist, spirituality or prayer, medication, and physical therapy.

The theoretical basis for this study using the framework HAPA buttressed the inputs provided in the survey that informs preventive or coping for patients undergoing anxiety and depression. This model was used to describe breast cancer treatment processes from the onset of the diagnosis, through treatment and the aftermath of treatment. The theory helped predict factors that led to anxiety and depression both from patients and professionals. Finally, this theory assisted in explaining the interventions and management of breast cancer within the context of the setting of the study.

In conclusion, there is a significant relationship between the responses of breast cancer patients undergoing radiotherapy and their level of anxiety and depression. Patients undergoing breast cancer treatment go through several experiences such as the burden of the treatment, high cost of treatment, and waiting time, resulting in high-level anxiety and depression. Late presentation to treatment is common in Ghana as a consequence of the multiplicity of reasons, affecting the overall survival of breast cancer patients. The effect sizes of the selected participants show strength of relationship though not every variable was statistically significant to patients' level of anxiety and depression. Further and future research with a larger sample size of patients from all the three Oncology departments within the country would shed more light on the relationships examined in this study. This study is imperious to promoting the scholarly research concerning the complete translation of the coping strategies in handling anxiety and depression.

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