

The influence of health beliefs on anxiety and depression among preoperative breast cancer patients

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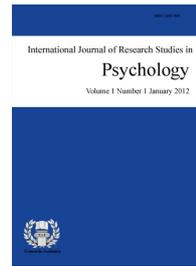
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Abstract

This study assessed the influence of health belief on anxiety and depression among preoperative breast cancer patients in Ghana. The cross-sectional survey design was used for data collection via two self-administered structured questionnaires. One hundred and five (105) preoperative breast cancer participants aged between 18 and 60 and one hundred (100) preoperative uterine fibroid patients serving as a comparative group were selected from three (3) referral health facilities in Ghana. The participants were administered tests assessing anxiety, depression and health beliefs. Multiple Regression analyses were carried out and the results revealed that breast cancer participants obtained significantly higher scores on anxiety, depression, severity and vulnerability subscales of the Health Belief Scale (HBS) than the uterine fibroid patients. Further analyses indicated that the measures of Health beliefs of vulnerability predicted higher anxiety and depression for the breast cancer participants compared with those of preoperative uterine fibroid patients. This study generates knowledge about the relations between health belief and psychological wellbeing among breast cancer patients in Ghana.

Keywords: anxiety; depression; health beliefs; preoperative; breast cancer; vulnerability and uterine fibroid

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1. Introduction

Breast cancer is a common and devastating health problem among women and it affects both developed and developing countries (Parkin, 2008). The disease is a major trauma and affects the person's feminine identity and their daily functioning in the society (Yeo, Kwan, Teo, Nip, Wong, Hin, & Johnson, 2004). A diagnosis of breast cancer can affect the family's socio-economic status with the treatment regime forcing many women to give up their jobs. The cost of the treatment, medication and other expenses could put excessive stress on the already distressed patient (Coughlin & Ekwueme, 2006). Globally, breast cancer was the highest among all cancer cases recorded in 2013 accounting for 1.8 million cases (Global Burden of Disease Study, 2013). An estimated 180,000 cases are diagnosed annually with about 40,000 deaths among African women (Ogharaerumi, 2009). In 2008, Ghana was reported to have approximately 2000 new cases of breast cancer (WHO, 2008).

Different categories of people suffer from the reported health problems associated with the disease including men and women. However, this study focuses on breast cancer women scheduled for surgery who are most vulnerable. This group is reported to have increased tension, nervousness, apprehension and aggression, anxiety and depression before surgery (Bailey, 2010; Carr, Brockbank, Allen & Strike, 2006; Kamoska, Kubiowski, Ciszewski, Czarnocki, Makara-Studzirska, & Bojar, 2015; Pritchard, 2009; Suppli, Johansen, Christensen, Kessing, Kroman, & Dalton, 2014). The study highlights the influence of anxiety and depression on the psychological states of preoperative breast cancer patients. This is due to the fact that the mental state including anxiety and depression of patients prior to surgery is very crucial as to determine the outcome of the surgery (Suppli et al., 2014).

1.1 Stages of breast cancer and survival rates

There are four stages of breast cancer and each one shows the extent to which the cancer cells have spread to nearby tissues (American Cancer Society, 2010).

In Stage I breast cancer, tumour is 2 centimetres or less than that in its greatest dimension. There is no regional lymph node found and no distant metastasis is present. At stage II breast cancer, the tumour is more than 2 centimetres but not more than 5 centimetres in its greatest dimension. At this stage, there is metastasis to moveable ipsilateral lymph node(s) but there is no distant metastasis present. When breast cancer reaches stage III, the tumour is estimated to be 5 centimetres or more. At this stage, there is metastasis to moveable ipsilateral lymph node(s) and distant metastasis is possible (Tierney, McPhee, & Papadakis, 1994). A Stage IV breast cancer is metastatic, spreading further beyond the breast. This last stage of the illness spreads to other parts of the body normally the bones, liver, or brain (National Cancer Institute, 2008).

The American Cancer Society (2010), estimated an overall 5 years survival rate of 98% for approximately 60% of the estimated 209,060 diagnosed cases of breast cancer that were localized to the breast only (without lymph node or distant involvement).

1.2 Anxiety and Depression as Psychological Effects on Breast Cancer Patients

Women who are diagnosed with breast cancer are at increased risk of developing psychological problems (Al-Azri, Al-Awisi, & Al-Moundhri, 2009). Stigmatization, unpleasant side effects, changes in physical appearance, loss of self-esteem and functioning, depression, anxiety, existential concerns are some psychological factors related to breast cancer diagnosis and treatment (Keitel & Kopala, 2000). Sexual dysfunction and marital

problems are other psychological effects (Clegg-Lampsey, Dakubo & Attobra, 2009).

Studies have reported that a significant number of adult patients scheduled for breast cancer surgery have elevated levels of anxiety such as increased tension, nervousness, apprehension and aggression before surgery (Bailey, 2010; Cooke, Chaboyer, Schluter & Hiratos, 2005; Curtis, 2000; Pritchard, 2009).

There are quite a number of causes of fear that could be associated with preoperative patients. These fears include anticipation of pain related to the surgery, anaesthesia, unsuccessful surgery, loss of individual identity, recuperation around unknown people, loss of control, failed recovery and death (Bajaj, 1996; Carr et al., 2006; Pritchard, 2009).

According to Suppli et al. (2014) women with breast cancer are at long-term increased risk for depression. There seem to be higher levels of depression among those with adjuvant chemotherapy compared with those who do not receive adjuvant therapy. Longman, Braden, and Mishel (1999), confirmed the link between chemotherapy and increased depression. A recent study by Kamińska et al. (2015) found symptoms of depression in 29.7% patients after breast conservation therapy (BCT) and in 38.9% patients after mastectomy.

2. Theoretical framework and Literature review

2.1 Health Belief Model

The main theory that was used to explain the study is the health belief model. The health belief of an individual plays an important role in the way he or she interprets and reacts to situations that seem to threaten their life and well-being. The Health Belief Model has been extensively used to explain health related behaviors in many parts of the world to provide cues to patients' actions during their diseases and to explain and predict their health-related behaviors based on their beliefs (Becker, 1974; Joseph, Burke, Tuason, Barker, & Pasick, 2009). The model was designed by Hochbaum (1958), Rosenstock (1960: 1966), and Becker (1974). The HBM measures four constructs which influence health behaviors. These are perceived severity, vulnerability, barriers and benefits. The Health Belief Model is based on the assumption that a person may go on to take a specific health care action or behavior if they believe that : a) they could be vulnerable to an diseases and this would help to prevent the condition; b) the health care result will be a positive one if they carry on with the health care and/or health prevention action; c) they can readily execute the health care action easily and with no uneasiness or at least with just a little discomfort (Becker, 1974).

Culture and the background of women may lead to some differences in how the model applies in different societies. Cohen and Azaiza (2005) explored the influence of cultural differences in screening behaviour among different women using the HBM. Cohen and Azaiza (2005) studied the health belief and related behaviours to breast cancer among Arab and Jewish women. They found that, although women from both cultures had similar perception of breast cancer susceptibility, Arab women viewed fewer benefits and more barriers to performing self-breast exams than Jewish women. The study also found low preventive screening and survival rate among the Arab women compared to Jewish women due to late stage diagnosis (Cohen & Azaiza, 2005). The possible factors that contributed to the increased perceived barriers as suggested by the authors were the age related differences in beliefs and the mediation factors such as the heightened risk awareness, knowledge of early screening procedures, and cultural beliefs (Cohen & Azaiza, 2005).

In Ghana, the issue of women reporting late to the hospital for breast cancer treatment was examined by Clegg-Lampsey, Dakubo, and Attobra (2009). This was attributed to their belief system which leads them to seek attention elsewhere until the situation has become much more serious before they report to the hospital. The perceived threat to the woman and her susceptibility compel them to go for breast examination and subsequent treatment. Thus, if the individual thinks that she is vulnerable to getting the condition, then she is more likely to avail herself for examination and treatment (Obrist et al., 2014).

2.2 Anxiety and Depression in Breast Cancer Patients

Elli et al. (2005) found that women who had been diagnosed with breast or gynaecological cancer and recipients of antidepressants experienced depressive symptoms which correlated with pain, anxiety and health related quality of life. While, Burgess, Cornelius, Love, Graham, Richards, and Ramirez (2005) studied the prevalence and risk factors for depression and anxiety in women with early breast cancer in the first five years after diagnosis. Responses indicated that nearly 50% of participants had depression, anxiety or both after a year of diagnosis, 25% in the second, third and fourth years and, and 15% in the fifth year. There was a drop in the level of prevalence of depression and anxiety from 33% to 15% after year one of the symptoms of cancer.

Studies have shown that the incidence of anxiety and depression at the beginning of breast cancer diagnosis can translate into the anxiety and depression that occurs during the first two years after diagnosis (Burgess et al., 2005; Den Oudsten, Van Heck, Van der Steeg, Roukema & De Vries, 2009; Vahdaninia, Omidvari, & Montazeri, 2010; Van Esch Roukema, Ernst, Nieuwenhuijzen, & De Vries, 2011). Anxiety and depression were associated with waiting time during the diagnosis and treatment process (Fogarty & Cronin, 2008; Paul, Carey, Anderson, Mackenzie, Sanson-Fisher, Courtney, & Clinton-McHarg, 2011; Schnur, Montgomery, Hallquist, Goldfarb, Silverstein, Weltz, Kowalski, & Bovbjerg, 2008). Patients reported highest level of distress on the day before surgery (Ryburn, 2003). One significant stressor that influenced women's depressive experiences during the breast cancer trajectory was the feeling of uncertainty (Shaha, Cox, Talman, & Kelly, 2008). Women experienced uncertainty before diagnosis and before surgery (Demir, Donmez, Ozaker, & Diramali, 2008; Drageset, Lindstrom, & Underlid, 2010; Montgomery, 2010; Schnur et al., 2008).

Demographic factors were recognized among the variables that increased the psychological distress and anxiety of the patients. Data concerning the association between demographics, anxiety and depression in the early phase of breast cancer have been contradictory. In reference to age, older people were found to have higher levels of anxiety and distress (Liao, Chen, & Chen, 2008; Novy, Price, Huynh, & Schuertz, 2001). However, other studies reported weak association between age, anxiety and distress (Ando et al., 2009; Montgomery & McCrone, 2010). There were similar disparities in previous studies on the influence of education on anxiety, distress and uncertainty among women who were suspected of having breast cancer. Higher education had been associated with less anxiety and distress but no significant difference between educational status, distress and anxiety (Collins, Corcoran & Perry, 2009; Montgomery & McCrone, 2010).

2.3 Hypotheses

The following hypotheses were tested based on literature:

- There will be significant differences in depression, anxiety and health beliefs between preoperative breast cancer and fibroid patients.
- Vulnerability will relate positively with anxiety than barriers, benefits and severity.
- Vulnerability will relate positively with depression than barriers, benefits and severity

3. Methodology

The methodology features the study design, study setting, population and sampling, instruments, procedures for data collection, ethical considerations, and techniques for data analyses.

3.1 Study Design

The cross sectional survey design was adopted for the study. Survey approach is often used to allow researchers to collect data from two or more groups of participants during the same, rather limited time-span on some topic or issue that is of interest to the researchers (Smith & Davis, 2004). The rationale for adopting a

survey method for this research was to examine the opinions of cancer patients and also uterine fibroid patients as a comparison group on health beliefs, anxiety, and depression within a limited time.

3.2 Study Setting

Participants were selected from the preoperative breast cancer patients registered with three referral hospitals in Ghana which were purposively selected. At the Korle Bu Teaching Hospital, the Surgical Department was chosen since that is the center where surgical operations including oncological cases are treated. The General Surgical unit of the 37 Military hospital was the specific center for the data collection. The 37 Military hospital is also a specialist and teaching hospital and caters for both civilians and army officers. The Sweden Ghana Medical Centre is specialized in cancer cases so all patients attending the facility were targeted to be selected into the sample. The Sweden Ghana Medical Centre is also the only private Oncology clinic in Ghana situated in a cosmopolitan city Accra. This health center enabled the study to incorporate views of patients from the private hospital.

3.3 Population

The population included all preoperative breast cancer patients at the Korle Bu Teaching hospital, 37 Military hospital and the Sweden Ghana Medical Centre, all in Accra, Ghana.

3.4 Sampling Techniques and Sample Size

The purposive sampling technique was employed. This technique was adopted because of the characteristics of patients; pre-surgical breast cancer patients, not many of the breast cancer patients reported daily at the various health facilities hence, the choice of the sample is based on the intended purpose of the study. While selection of participants was based on purpose, the actual data collection was mainly through the availability (convenience) and willingness of participants. The sample was made up of one hundred and five (105) breast cancer participants and one hundred (100) uterine fibroid participants serving as a comparison group. An estimate of statistical power was determined using the G power computer software to work out the required sample size (Erdfelder, Faul, & Buchner, 1996). The sample size was based on a formulation of 80% power, at least six independent variables, an effect size of .15 ($R^2 = .13$) with a significance of .05 for a two-tailed test. A sample size of at least 100 each was enough for the sub groups for multiple regression analysis. Breast cancer patients diagnosed with Stage I, Stage II, and Stage III breast cancer and awaiting surgery were targeted. These patients had already undergone either chemotherapy or radiotherapy.

3.5 Sample Characteristics of Breast Cancer and Uterine Fibroid Participants

The sample characteristics of the breast cancer and uterine fibroid participants are presented on Table 1. The cancer participants had mean age of 45.39 years ($SD = 3.97$) and fibroid participants had mean age of 42.96 years ($SD = 7.43$). The average number of years in school for both groups was 10 years which equates to at least basic education up to Junior High School in Ghana. While 19% of cancer patients reported not having any formal education, no fibroid patient indicated same but 66 (66%) of the fibroid group had basic education. The other levels of education were almost the same for both groups. The age of first diagnosis of cancer participants was on average 43.77 ($SD = 8.78$) and that of fibroid patients ($M = 40.93$, $SD = 6.93$). Breast cancer participants had an average 19.02 months ($SD = 11.29$) since diagnosis and fibroid participants had average of 24.74 months ($SD = 18.89$) since diagnosis.

Table 1*Socio-demographic and Disease-related Characteristics of the Sample*

Variable	Cancer patients (n= 105) (%)	Fibroid patients (n=100) (%)
Age		
Mean (SD)	45.39 (3.97)	42.96 (7.43)
No. of years in school		
Mean (SD)	10.22 (6.00)	10.88 (3.09)
Age of first diagnosis		
Mean (SD)	43.77 (8.78)	40.93 (6.93)
Time since diagnosis (Months)		
Mean (SD)	19.02 (11.29)	24.74 (18.89)
Educational level		
No education	20 (19.0%)	0 (0.0%)
Prim/Middle/ JSS	34 (32.4%)	66 (66.0%)
Secondary	29 (27.6%)	20 (20.0%)
HND/1 st Degree	17 (16.2%)	12 (12.0%)
Post degree	5 (4.8%)	2 (2.0%)
Marital status		
Single	11 (10.5%)	18 (18.0%)
Married/cohabit.	69 (65.7%)	58 (58.0%)
Widowed	14 (13.2%)	12 (12.0%)
Divorced	11 (10.5%)	12 (12.0%)
Current stage of cancer		
Stage I	18 (17.1%)	
Stage II	33 (31.4%)	
Stage III	41 (39.0%)	
Don't know	13 (12.4%)	
Type of treatment for cancer		
Mastectomy	80 (76.2%)	
Lumpectomy	25 (23.8%)	
Type of treatment for fibroid		
Hysterectomy		46 (46.0%)
Myomectomy		54 (54.0%)

Note. * $p < .05$, ns = not significant.

3.6 Inclusion Criteria for Participants

The inclusion criteria were pre surgical patients with breast cancer and uterine fibroid. It included breast cancer patients diagnosed with stages I, II and III scheduled for removal of the whole or part of the breast. Also fibroid patients registered for surgical removal of the whole uterus or surgical removal of fibroid leaving the uterus intact. Patients were between 18 years and 60 years. It also included patients who did not have any evidence of mental disorders and had between 1-2 weeks to surgery and had volunteered to participate.

3.7 Exclusion Criteria for Participants

Exclusion criteria included terminally ill patients for example cancer (Stage IV), diagnosis of mental retardation. Also patients below 18 years and above 60 years were excluded from the participants.

3.8 Measures

In all, three research instruments were used to collect data from the respondents (main and comparison groups). They included a Personal Data Form and two different questionnaires. The questionnaires were: Health Belief Scale (Champion, 1984; Okraku, Ofori-Atta, Danquah, Ekem, & Acquaye, 2009) and Brief Symptom Inventory (BSI); (Derogatis, 1993). A self-report personal data form was created for this study to document information about participants' age, employment status, educational level, relationship status, and parental status, type of surgery treatment and time since diagnoses among others.

Demographic Information - The demographic information sheet of the patients comprised 25 questions which covered personal information such as age, educational level, employment status, relationship status, parental status, type of surgery to undergo, time since diagnoses and stage of breast cancer among others. The demographic information sheet for the comparison fibroid group comprised 20 questions which covered the same personal information as the breast cancer group.

Health Belief Scale (Champion, 1984; Okraku et al., 2009) - This instrument is made up of 20 items. It was developed by Champion (1984). The scale is sub divided into four constructs namely perceived vulnerability, severity, benefits and perceived barriers. It is a five-point Likert scale and respondents are asked to indicate their level of agreement with particular statement on the four constructs. This scale has been modified and used among sickle cell patients in Ghana by Okraku et al. (2009). The health belief scale as modified has good internal consistency with Cronbach's alpha above .70 (Okraku et al., 2009).

Brief Symptom Inventory (BSI) (Derogatis, 1993) - The Brief Symptom Inventory (BSI) developed by Derogatis (1993) is a 53-item Likert-type instrument designed to measure various psychological symptoms, patterns of psychiatric and medical patients as well as community non patient respondents. It is the short form of SCL- 90-R (Derogatis, 1993). The responses to the items range from (0-4) with 0 being "not at all" and 4 "extremely" to the question. It has nine primary symptom dimensions which include Somatization (SOM), Obsessive-Compulsive (O-C), Interpersonal Sensitivity (I-S), Depression (DEP), Anxiety (ANX), Hostility (HOS), Phobic Anxiety (PHOB), Paranoid Ideation (PAR), and Psychoticism (PSY). Cronbach alpha score was found to be between .71 and .85 for the BSI 9 subscales.

3.9 Procedures

Approval was obtained from the Institutional Review Board of Noguchi Memorial Institute for Medical Research at University of Ghana, Legon. One psychologist was briefed to serve as a research assistant to help in data collection. The researcher sought permission from the authorities of the various health facilities selected. Selected patients were briefed about the aim of the study and their informed consent sought. Those who agreed to be part of the study were administered with the questionnaires in patients' waiting rooms or in their wards for those on admission at the hospitals. Completed questionnaires were retrieved instantly after the sessions. Prior to the above, a pilot study was carried out with 20 participants from the already mentioned health facilities; their background reflected that of the larger study. This was to pre-test the instruments, data collection procedures and data analysis techniques as well as to evaluate the viability of the main study. The same procedure used for the breast cancer group was applied to the uterine fibroid group in the data collection at the Korle Bu teaching hospital and 37 Military hospital.

3.10 Data Analysis Techniques

All the data were entered into Statistical Package for the Social Sciences (SPSS) 20.0 for Windows for data analysis at the end of the data collection period. Hypothesis 1 was analyzed using MANOVA to compare the two groups. Hypotheses 2 and 3 were analyzed using Multiple Regression technique to explore the extent to which health belief affects anxiety and depression levels of the breast cancer participants.

4. Results

Two main types of analyses were carried out. The first involved preliminary analyses and the second consisted of testing the hypotheses of the study using appropriate statistical techniques.

4.1 Preliminary Analysis

Preliminary analyses were conducted to summarize the data in a form that could be easily interpreted. These included principal component analysis of the various scales used, analysis of normal distribution of the variables,

descriptive analysis and correlation matrix among key study variables. The Means, SD, Skewness, Kurtosis and Alpha Reliabilities of Psychological Symptoms (BSI subscales) and Health Belief Scale were found to be appropriate for the analyses.

4.2 Hypotheses Testing

Hypothesis 1 stated that 'There will be significant differences in depression, anxiety and health beliefs between preoperative breast cancer and fibroid patients.' This hypothesis was partially supported as seen in Table 2. First, using Bonferroni adjusted to .005 to .001 level of alpha for BSI and its subscales, the results revealed significant differences for type of condition ($\lambda = .446, p < .001$). It revealed that cancer patients had more depression than fibroid patients $F(1, 201) = 19.63, p < .001$.

The mean scores for cancer patients was higher on depression ($M=1.23, SD=.87$) than for fibroid patients ($M=.79, SD=.59$). The effect size was very small though ($\eta^2=.09$). There was also a significant difference on anxiety between breast cancer and fibroid patients but the effect size was very negligible ($\eta^2=.03$). However, when the other subscales of the BSI assessing psychological symptoms was examined, the result revealed significant differences between breast cancer and fibroid participants on paranoid ideation, $F(1, 201) = 118.38, p < .001$. The mean scores for fibroid patients ($M=1.82, SD=.68$) was higher than Breast cancer patients ($M=.81, SD=.65$) on Paranoid ideation. The mean score for cancer patients on obsessive compulsive was ($M=.97, SD=.62$) and that of fibroid ($M=.78, SD=.39$). The effect size was very negligible ($\eta^2=.03$). The mean score was higher for cancer patients on Interpersonal sensitivity ($M=.71, SD=.56$) than Fibroid ($M=.53, SD=.42$). The effect size was very negligible ($\eta^2=.03$). The mean score for Cancer patients on Psychoticism ($M=.71, SD=.56$) was higher than the fibroid ($M=.52, SD=.42$). The effect size was very negligible ($\eta^2=.03$).

Table 2

Multivariate Analysis Comparing Breast Cancer and Uterine Fibroid Participants on Brief Symptom Inventory

Factors	Cancer (n=105)	Fibroid (n=100)	F	p	η^2
	M (SD)	M (SD)			
Obsessive-compulsive	.97 (.62)	.78 (.39)	7.08	.008**	.03
Int. sensitivity	.71 (.56)	.53 (.42)	6.13	.014*	.03
Somatization	1.21 (.69)	1.11 (.66)	.97	.327	-
Depression	1.23 (.87)	.79 (.59)	19.63	<.001**	.09
Anxiety	1.40 (.90)	1.15 (.69)	6.22	.013*	.03
Hostility	.67 (.68)	.50 (.62)	3.81	.052	-
Phobic Anxiety	.68 (.71)	.52 (.44)	3.59	.060	-
Paranoid Ideation	.81 (.65)	1.82 (.68)	118.38	<.001**	.37
Psychoticism	.71 (.56)	.52 (.42)	8.04	.005**	.04
BSI	1.05 (.60)	1.03 (.44)	.16	.687	-

Note. **= $p < .001$; * = $p < .05$. Wilks Lambda (λ) = $F(10, 192) = 23.841, p < .001, df = 1, 201$.

In comparing breast cancer and fibroid participants on the Health Belief Scale, GLM analysis using Bonferroni adjusted to .01 level of alpha revealed some significant differences for type of condition ($\lambda = .786, p < .01$). The result revealed significant differences between cancer and fibroid participants on the HBS, $F(1, 202) = 16.73, p < .01$ with breast cancer patients ($M=58.07, SD= 6.78$) scoring higher than the fibroid patients ($M=54.05, SD= 8.23$). The effect size was less than .1 ($\eta^2=.08$); indicating a very small effect size. When the subscales were compared, the results showed significant differences between the two groups on vulnerability $F(1, 202) = 16.88, p < .01, \eta^2=.08$; with cancer patients ($M=14.52, SD= 1.70$) scoring higher than fibroid ($M=13.51, SD= 2.06$). The two groups were significantly different on severity $F(1, 202) = 40.26, p < .01, \eta^2=.17$; with cancer patients having higher levels of severity ($M=15.87, SD= 3.10$) than fibroid patients ($M=12.18, SD= 4.83$). The two groups also differed significantly on benefits with fibroid group having higher levels of benefit ($M=16.00, SD=3.03$) than cancer group ($M= 15.11, SD=2.92$).

Table 3

Multivariate Analysis Comparing Breast Cancer and Uterine Fibroid Groups on Health Beliefs Factors

Health Beliefs	Cancer (n=105)	Fibroid (n=100)	F	p	η^2
	M (SD)	M (SD)			
Vulnerability	14.52 (1.70)	13.51(2.06)	16.88	<.001**	.08
Benefits	15.11 (2.92)	16.00(3.03)	4.79	.030*	.02
Barriers	14.47 (2.80)	14.47 (4.90)	.00	.996	..
Severity	15.87 (3.10)	12.18(4.83)	40.26	< .001**	.17
HBS	58.07 (6.78)	54.05 (8.23)	16.73	<.001**	.08

Note. **= $p < .001$ * = $p < .05$. Wilks Lambda (λ) = F (4, 198) = 13.493, $p < .01$, $df = 1, 202$.

In sum, in comparing cancer and fibroid participants on the variables studied, it was found that cancer patients were higher on depression, anxiety and health beliefs including the vulnerability and severity subscales of the Health Belief Scale than fibroid patients.

4.3 Hypothesis 2

Hypothesis 2 examined the predictive power of the vulnerability subscale scores of the health belief scale against the rest of the subscales on anxiety for the cancer patients using standard multiple regression analysis. It was stated that ‘Vulnerability will relate positively with anxiety than barriers, benefits and severity’. From Table 4 it is observed that the overall model predicting anxiety for cancer patients was significant $R^2 = .15$, [F (4, 104) = 4.56, $p < .05$]; explaining about 15% of the variance in anxiety. The result showed that perceived vulnerability predicted anxiety significantly ($\beta = .47$, $p < .05$). In line with Hypothesis 2, perceived vulnerability predicted anxiety for the preoperative cancer patients than benefits, barriers and severity. Therefore, the hypothesis as stated was supported by the data.

Table 4

Summary of Multiple Regression Analyses for Health Beliefs predicting Anxiety for Breast Cancer Participants

Predictors	B	Std Error	Beta (β)	p	F	R ²
Constant	-1.09	.78		.002	4.56*	.15
Perceived Vulnerability	.25	.06	.47*			
Perceived Benefits	-.00	.03	-.01			
Perceived Barriers	-.02	.03	-.08			
Severity	-.05	.03	-.16			

Note. Dependent Variable: Anxiety * $p < .05$.

4.4 Hypothesis 3

Hypothesis three was predicted that ‘Vulnerability will relate positively with depression than barriers, benefits and severity’. From Table 5, overall model predicting depression for cancer patients was significant, $R^2 = .14$, [F (4, 104) = 4.07, $p < .05$]; explaining about 14% of the variance in depression. The results showed that perceived vulnerability predicted depression significantly ($\beta = .44$, $p < .05$). In line with Hypothesis 3, perceived vulnerability predicted depression for the preoperative cancer patients than barriers, benefits, and severity subscales. Therefore, the hypothesis as predicted was supported by the data.

Table 5

Multiple Regression Analyses for Health Beliefs Predicting Depression for Breast Cancer Participants

Predictors	B	SE	Beta (β)	p	F	R ²
Constant	-1.09	.76		.004	4.07*	.14
Perceived Vulnerability	.23	.06	.44*			
Perceived Benefits	.01	.03	.02			
Perceived Barriers	-.02	.03	-.06			
Severity	-.05	.03	-.18			

Note Dependent Variable: Depression. * $p < .05$.

5. Discussion

The impact of socio-demographic factors in the study of cancer patients cannot be underrated as they contribute immensely to the level of distress and health seeking behaviours. The literature on cancer studies has been replete with socio-demographic characteristics, personality factors, psychosocial support, illness-related factors such as psychological distress and medical factors as important in determining cancer patients' coping strategies (Al-Azri, Al-Awisi, & Al-Moundhri, 2009). Many socio-demographic factors were examined in this study. For instance, age of patients, age at diagnosis, time since diagnosis and number of years in school correlated with psychological symptoms.

It was observed that both age of patient and age at diagnosis were not associated with psychological outcomes; specifically anxiety and depression. Thus, being old or young and having been diagnosed early or later in life were not likely to be associated with lower or higher anxiety and depression. The results are only presumptuous of the fact that older women have the higher probability of developing cancer (Ogbaraerumi, 2009). On this basis, it could be argued that majority of those who have cancer would become long-term survivors and research shows that cancer survivors continue to experience diminished psychological health, even decades after diagnosis and initial treatment (Bloom, 2002).

5.1 Difference between preoperative breast cancer patients and fibroid patients on psychological outcomes (depression and anxiety) and health beliefs.

In comparing breast cancer and fibroid participants on the variables studied, it was found that breast cancer patients were higher on anxiety, depression and health beliefs than fibroid patients. Results of some studies have revealed that anxiety and depression are the most frequently reported cancer-related symptoms with more than 30% of women with early breast cancer having depression, anxiety, or both at diagnosis (Burgess et al., 2005). These findings suggest that the majority of the variance in anxiety and depression can be attributed to the disease status of the patient.

There was a difference found between breast cancer and fibroid participants; cancer participants reported more anxiety and depression than the fibroid group. Research shows that many women lack the appropriate coping strategies to deal with the physical and psychological challenges of the disease, hence; tend to be severely depressed (Hack & Degner, 2004; Lauver, Connolly-Nelson, & Vang, 2007).

5.2 Relationship among Health beliefs, Anxiety and Depression

The results of the study also show a relationship between health beliefs (vulnerability) and anxiety and depression for cancer patients. Vulnerability predicted anxiety and depression significantly indicating that perceived vulnerability was associated with increased anxiety and depression for the preoperative cancer patients. Therefore, Vulnerability was a stronger predictor of anxiety and depression than barriers, benefits and severity. Thus, among the health belief subscales, perceived vulnerability was a better predictor of anxiety and depression.

In line with the finding that breast cancer patients perceived that they were much more vulnerable, this tended to be significantly associated with their increased anxiety and depression, This explains why people's belief system could play a very significant role in determining their perception and interpretation of diseases which confront them (Danquah, 2008; Puchalski, 2012; Tercyak, Nicolas, Councill, Prahlad, Taylor, Shad, 2004; Vivien & Noor, 2013).

6. Conclusion

It was evident in the discussion that breast cancer patients had more anxiety and depression than the fibroid group and equally had higher levels of health beliefs than the fibroid participants. The health beliefs (perceived

vulnerability) of breast cancer participants predicted both anxiety and depression than benefits, barriers and severity. As their vulnerability increases so did their anxiety and depression go up which means that majority of participants felt vulnerable and had increased anxiety and depression levels.

7. References

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