CORRELATES OF DEPRESSION AND ANXIETY AMONG THE CANCER PATIENTS IN THE RADIOTHERAPY CLINIC IN UCH, IBADAN, NIGERIA

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ABSTRACT

The diagnosis of cancer and its management result in several problems for cancer patients. This may result from factors some of which may be modifiable. This study was aimed at identifying the prevalence of depression and anxiety in patients attending the Radiotherapy Clinic in the UCH, Ibadan and to identify the variables affecting them. The Beck's Depression Inventory (BDI-II) and the Fear of Progression (FOP$_{12}$) scales were used to assess depression and anxiety among cancer patients. The 206 diagnosed cancer patients studied were made up of 146 (79.6%) women and 42 (20.4%) men. Some 76 (36.9%) had moderate to very high anxiety while 29 (14.1%) had borderline to severe depression. The ages ranged between 10 to 85 years with a mean of 47.84 (+/_ 16.45). In prevalence of anxiety and depression, 36.9% of the cancer patients experience varying levels of anxiety and 31.6% experience varying levels of depression. On logistic regression, age, religion, educational level and treatment type significant factors for anxiety. Specifically, being older than 40years, being a Christian, not reporting educational qualification and not yet commencing treatment compared to having surgery as the current treatment type was significant risk factors for anxiety. Only treatment type was a significant risk factor for depression that is not yet commencing treatment compared to having surgery as the current treatment type was a factor for depression. Appropriate Psychological evaluation and therapy as may be needed should be administered to all oncology patients preparing for surgery and chemotherapy to enhance their emotional and psychological wellbeing. The findings of this study have implication for establishment of psycho-oncology care in all the cancer centres in Nigeria.

Key words*: Anxiety, Depression, Cancer patients, Prevalence, Radiotherapy*

BACKGROUND

The diagnosis of cancer and its management result in several psychological, physical and psychosomatic problems for cancer patients, the consequence of which is often a deterioration of the physical and psychosocial condition of these patients (Waller, Williams, Groff and Bultz, 2011). Singer, Das-Munshi and Brahler (2009) in a meta-analysis showed that approximately one-third of patients with cancer suffer from a mental disorder at various stages in the disease trajectory.

Some studies have most commonly reported anxiety and depression as the two most pervasive mental health challenges in cancer patients (Pasquini and Biondi 2007; Bradley, 2003). Cancer diagnosis and treatment bring changes in patients' personal paths of life, in their daily activities, work, relationships, and family roles, and it is associated with a high level of patient psychological stress (Pirl. 2004) This stress shows up as anxiety and/or depression (Zabalegui, Sanchez and, Juando, 2005). Anxiety and depression in cancer patients may be caused by various reasons including psychological reaction caused by diagnosis of cancer, long duration of treatment, side effects of treatment, repeated hospitalizations, disruption in life and diminished quality of life (Mystakidou, Tsilika, Parpa, Katsouda, Galanos and Vlahos, 2005; Pandey, Sarita, Devi, Thomas, Hussain and Krishnan, 2006; Jacobsen and Jim, 2008;). Furthermore, some of the agents act directly on central nervous system causing psychiatric morbidity (Capuron, Ravaud and Dantzer, 2000).

Anxiety can be defined as an unpleasant subjective experience associated with the perception of real or imagined threat and is a common symptom in connection with cancer (Ahlberg, Ekman, Wallgre and, Johansson, 2004; Dragese and Lindstrom , 2005, Reuter, Classen, Roscoe, Morrow, Kirshner, Rosenbluth, Flynn, Shedlock , and Spiegel, D. 2006). Anxiety is mainly related to uncertainty about the diagnosis, side-effects of chemotherapy or radiotherapy treatment, lack of social or personal control, progressive physical deterioration, and thoughts of near death (Zabalegui, Sanchez and, Juando, 2005). Depression is a challenge to study in cancer patients as symptoms occur over a range of spectrum being different in different patients (Lloyd-Williams, 2000). It may present with guilt, worthlessness, hopelessness, lowered self esteem, social withdrawal or suicidal preoccupation (Lloyd-Williams, 2000; Lynch, 1995). Patients who are depressed may also have physical symptoms which are difficult to palliate and which may improve as their depression is appropriately treated (Lloyd-Williams, 2001).

Since patients are highly different in their emotional response to the diagnosis and treatment of cancer, it is important to identify personal and clinical characteristics that can best explain differential levels of anxiety and depression in patients.

Purpose
1. To determine the prevalence of anxiety and depression amongst cancer patients
2. To ascertain the correlates of anxiety among cancer patients
3. To find out the correlates of depression among cancer patients

METHODOLOGY

Design

This study is a descriptive study that adopted the use of questionnaire for data gathering.

Sample and sampling technique

A total population sampling of 206 consecutive patients seen at the Radiotherapy Department, University College Hospital, Ibadan oncology clinic were recruited for this study. All gave informed consent for the study. Data was collected for the period of twelve months from June 2013 to May 2014.

Instruments

The two instruments used in this study were the Beck's Depression Inventory (BDI-II) and the Fear of Progression (FOP$_{12}$). Demographic information was collected through the use of a demographic data sheet.

The BDI-II is a self-rating 21 items scale developed by Beck, Steer, and Brown, 1996, used in assessing depression. The instrument has been shown to have a test–retest reliability coefficient of 0.93 (Beck, Steer & Brown, 1996). From a minimum to maximum score range of 0-63, a score range of 1-10 is considered normal, 11-16 is mild mood disturbance, 17-20 is borderline clinical

depression, 21-30 is moderate depression, 31-40 is severe depression and over 40 is extreme depression.

The Short Fear of Progression Questionnaire (FOP $_{12}$) is a I2-item self rating scale that was used to assess the level of patients' anxiety. It has 5-point response scale of 0-4 with 0 indicating 'never' and 4 indicating 'very often'. The minimum obtainable score is 0 and the maximum obtainable score is 48. The higher the score the higher will be the participants level of anxiety. This instrument has reported a Cronbach's alpha of .87 (Mehnert, Herschbach, Berg, Henrich, and Koch, 2006) meaning that it is very reliable. Scores are interpreted using 0-17 for normal, 18-24 for moderate anxiety, 25-36 for high anxiety and above 36 for very high anxiety. It was re-validated for cultural sensitivity and it has a Cronbach alpha of .92.

The FOP$_{12}$ and BDI-II instruments have been widely used across cultures to assess anxiety and depression respectively in cancer patients' population.

Procedure

Patients attending the radiotherapy clinic for treatment were approached by trained research assistants in the waiting room to fill the questionnaires. Patients were initially educated on the purpose of the study and what is required of them when filling the questionnaires. They were informed that they were free to refuse to participate in the study and their non-participation will not affect their treatment in the clinic in anyway. Patients who were willing and gave consent to participate in the study were given the questionnaires to fill after which it was collected from them.

Data analysis

Data was coded and analysed using SPSS. Descriptive and inferential statistics were used to analyse the data. Frequency counts and percentages were used in determining the prevalence of anxiety and depression among the cancer patients and to report the demographic and clinical characteristics of participants in this study.
Logistic regression analysis was employed to determine the correlates for anxiety and depression in cancer patients from amongst various demographic and clinical factors. A p value of < 0.05 was considered statistically significant.

RESULTS

Table 1: Cancer patients' demographic and clinical characteristics

Gender	Freq (%)	Religion	Freq (%)	Occupational Status	Freq (%)
Male	42 (20.4%)	Christianity	161(78.2%)	No response	70(34.0%)
Female	164 (79.6%)	Islam	45(21.8%)	Currently employed	71(34.5%)
Total	206 (100%)	Total	206 (100%)	Currently unemployed	65(31.6)
				Total	206(100%)
Education	**Freq (%)**	**Marital Status**	**Freq (%)**	**Tribe**	**Freq (%)**
No response	11(5.3%)	No response	27(13.1%)	No response	20(9.7%)
Non/Primary	76(36.9%)	Married	159(77.2%)	Hausa	7(3.4%)
Secondary	45(21.8%)	Unmarried	17(8.3%)	Yoruba	106(51.5%)
Tertiary	74(35.9%)	Unmarried but in relationship	3(1.5%)	Ibo	47(22.8%)
Total	206(100%)	Total	206(100%)	Others	26(12.6%)
				Total	206(100%)
Cancer Stage	**Freq (%)**	**Treatment type**	**Freq (%)**	**Cancer Type**	**Freq (%)**
Unknown	148 (71.8%)	Yet to start treatment	63(30.6%)	No response	34(16.5%)
Stage i	23 (11.2%)	Surgery	36 (17.5%)	Prostate	12(5.8%)
Stage ii	20 (9.7%)	Chemotherapy	69 (33.5%)	Breast	45(21.8%)
Stage iii	14 (6.8%)	Radiotherapy	38 (18.4%)	Cervix	92(44.7%)
Stage iv	1 (0.5%)	Total	206 (100.0%)	Others	23(11.2%)
Total	206			Total	206(100%)

Table 1 shows that majority of the respondents were female (79.6%), Christians (78.2%), married (77.2%), Yorubas (51.5%), had unknown cancer stage (71.8%), were on chemotherapy treatment (33.5%) and had cervical cancer (44.7%)

Research Question 1: What is the prevalence of anxiety and depression in cancer patients?

Table 2: Prevalence of anxiety and depression amongst cancer patients

Anxiety Levels	Freq (%)	Depression Levels	Freq (%)
Normal anxiety	130 (63.1%)	Normal	141 (68.4%)
Moderate anxiety	34 (16.5%)	Mild mood disturbance	36 (17.5%)
High anxiety	36 (17.5%)	Boderline clinical depression	12 (5.8%)
Very high anxiety	6 (2.9%)	Moderate depression	13 (6.3%)
Total	206 (100.0%)	Severe depression	4 (2.0%)
		Total	206 (100.0)

Table 2 above shows that 36.9% of the cancer patients experience varying levels of anxiety and 31.6% experience varying levels of depression.

Research Question 2: What are the correlates of anxiety among cancer patients?

Table 3: The Results of Logistic Regression Analysis showing association of variables with anxiety in cancer patients

Variables	OR	95% CI	P
Age			
AGE <=40years (ref.)	1		.038
AGE > 40years	2.418	1.051-5.563	
Sex			
Male (ref.)	1		
Female	.799	.296-2.160	.659
Religion			
Christianity (ref.)	1		
Moslem	.367	.165-.819	.014
Marital Status			
No response (ref.)	1		.418
Currently married	3.442	.173-68.628	.434
Currently unmarried	3.072	.185-51.031	.244
Currently unmarried but in serious relationship	5.862	.299-114.843	.418
Educational level			
No response (ref.)	1		.162
Non/Primary Education	.551	.110-2.761	.469
Secondary Education	.362	.150-.876	.024
Tertiary Education	.626	.251-1.564	.316
Occupational Status			
No response (ref.)	1		.487
Currently employed	1.033	.422-2.531	.943
Currently unemployed	1.590	.688-3.675	.278
Cancer Type			
No response (ref.)	1		.503
Prostate cancer	.827	.207-3.299	.788
Breast cancer	3.371	.582-19.508	.175
Cervical cancer	1.672	.436-6.410	.453
Other	1.406	.412-4.801	.587
Cancer Stage			
No response (ref.)	1		.077
Stage 1	.000	.000	1.000
Stage 2	.000	.000	1.000
Stage 3	.000	.000	1.000
Stage 4	.000	.000	1.000
Treatment type			
No treatment yet (ref.)	1		.119
Surgery	.289	.104-.804	.017
Chemotherapy	.499	.163-1.528	.223
Radiotherapy	.602	.234-1.551	.293

OR = odds ratio, 95% CI = 95% confidence interval, ref. = reference group.

Age is significantly associated with anxiety (p<0.05). The odds of cancer patients above age 40 to be anxious is twice greater than those below or equal to age 40 (OR = 2.418, 95% CI = 1.051-5.563). Religion is significantly associated with anxiety (p<0.05). The odds of cancer patients who are Christians to experience anxiety is greater (OR= 1, 95% CI = .165-.819) greater than for those

who are Moslems. Educational qualification is significantly associated with anxiety (p<0.05). The odds of cancer patients who did not report their educational qualification to experience anxiety (OR = 1, 95% CI = .150.-876) is greater than that for patients who have secondary education. Treatment type has significant association with anxiety (p<0.05). The odds of cancer patients who are yet to commence treatment (OR = 1, 95% CI = .104-.804) to have anxiety is higher than that for patients who have had surgery.

Research Question 3: What are the correlates of depression among cancer patients?

Table 4: The Results of Logistic Regression Analysis showing association of variables with depression in cancer patients

Variables	OR	95% CI	P
Age			
AGE <\=40years (ref.)	1		
AGE > 40years	1.941	.864-4.360	.108
Sex			
Male (ref.)	1		
Female	1.123	.414-3.045	.820
Religion			
Christianity (ref.)	1		
Moslem	.633	.293-1.366	.244
Marital Status			
No response (ref.)	1		.239
Currently married	2019181912.876	.000	.999
Currently unmarried	1231139946.165	.000	.999
Currently unmarried but in serious relationship	4154318865.598	.000	.999
Educational level			
No response (ref.)	1		.933
Non/Primary Education	1.601	.350-7.316	.544
Secondary Education	.958	.409-2.246	.921
Tertiary Education	1.010	.402-2.538	.983
Occupational Status			
No response (ref.)	1		.387
Currently employed	.645	.272-1.529	.319
Currently unemployed	1.191	.535-2.650	.668
Cancer Type			
No response (ref.)	1		.470
Prostate cancer	.370	.094-1.448	.153
Breast cancer	.324	.057-1.853	.205
Cervical cancer	.771	.210-2.828	.695
Other	.782	.241-2.535	.682
Cancer Stage			
No response (ref.)	1		.146
Stage 1	.000	.000	1.000
Stage 2	.000	.000	1.000
Stage 3	.000	.000	1.000
Stage 4	.000	.000	1.000
Treatment type			
No treatment yet (ref.)	1		.140
Surgery	.328	.120-.892	.029
Chemotherapy	.701	.233-2.108	.527
Radiotherapy	.698	.277-1.759	.446

OR = odds ratio, 95% CI = 95% confidence interval, ref. = reference group.

Table 4 shows that patients that are yet to commence surgery have a high likelihood of experiencing depression (OR = 1, 95% CI = .120-.892) compared to those that have had surgery.

DISCUSSION

The current study found a prevalence rate of 36.9% and 31.6% for anxiety and depression respectively in cancer patients. This is much lower than the 61.5% prevalence of Anxiety and 81.3% prevalence of depression reported for Turkish cancer survivors (Karabulutlu, Bilici, Çayır, Tekin and Kantarcı, 2010) and 66% prevalence of depression and anxiety in patients with cancer reported by Jadoon, Munir, Shahzad and Choudhry (2010) in Pakistan.

A significant correlate of anxiety in cancer patients in this study is being older than 40years. Although there is still relatively little research on the effects of aging on cancer and survivorship, age appears to be related to the overall cancer experience (Blank and Bellizzi, 2008; Burdette-Radoux & Muss, 2006; Chen, Cantor, Meyer, et al, 2003). For instance, in a study examining psychological distress in patients with ovarian cancer, all women in the sample experienced a significant levels of anxiety, however younger patients in the study experienced more distress than older patients (Norton, Manne, Rubin, et al 2004). Some other researchers have also reported that younger adults with cancer have a higher risk of suffering from anxiety than older adults with cancer which is unlike the finding in our study (Vodermaier, Linden, MacKenzie, Greig and Marshall, 2011; Jadoon, Munir, Shahzad et al,:2010; Tavoli, Mohagheghi, Montazeri, Roshan, Tavoli and Omidvari, 2007; Redeker, Lev and Ruggiero, 2000; Matsushita, Matsushima and Maruyama, 2005; Blank and Bellizzi, 2008; Kurtz, Kurtz, Stommel, Given and Given, 2001; Nelson, Weinberger, Balk, Holland, Breitbart and Roth, 2009) further reported that depressive symptoms however significantly and consistently increased with age.

A similar findings to ours is found in a more recent studies (than those cited above) from among cancer patients in Brazil (Carvalho, Chaves, Iunes, Simão, Grasselli and Braga, 2014) and Iran (Nikbakhsh, Moudi, Abbasian and Khafri, 2014) indicating significant relationships between anxiety and the age group of the patients with higher frequency in older ages. The presence of physical aging-related problems, co-morbid medical conditions, and their symptom burden in older patients can overwhelm their coping ability, potentially leading to increased vulnerability to distress, anxiety, and depression (Kurtz, Kurtz, Stommel, Given and Given, 2001). Moreover, old age increases the duration of disease, high probability of cancer metastasis and more disability which can increase anxiety and depression in older patients.

A significant association was found between anxiety in cancer patients and religion. Christians were shown to have a greater chance of suffering anxiety than Moslems. Rezaei , Adib-Hajbaghery, Seyedfatemi and Hoseini (2008) have observed that the awareness of God increases in illness causing Muslims to draw closer to God. A study of African Americans, Latinos, breast cancer survivors however shows that a higher percentage of those who self-identified as Christians were more likely to feel comforted by God than were other groups (Levine, Yoo, Aviv, et al, 2007) and hence less likely to suffer anxiety. This is likely because spirituality by means of prayer is beneficial, for it leads to tension relief, increased hope and reduced anxiety (Zenevicz, Moriguchi and Madureira, 2013). Research indicates that both patients and family caregivers

commonly rely on spirituality and religion to help them deal with serious physical illnesses (Kim Y, Wellisch DK, Spillers RL, et al. 2007; Whitford, Olver and Peterson, 2008).

In this study, not yet commencing treatment compared to having surgery as the current treatment type was significant risk factor for anxiety and depression. This finding is similar to that of other studies in which patients waiting to commence chemotherapy or radiotherapy experienced significant levels of anxiety and/or depression (Breen, Baravelli, Schofield, Jefford, Yates, and Aranda, 2009; Hopwood and Stephens, 2000; Hargraves, Yates, Grove, et al, 2004; Wedding, Koch, Rohrig, et al. 2008). This therefore underscores the need to take both physical and emotional factors into consideration before commencing treatment for cancer patients, as administering of chemotherapy drugs is likely to increase symptom burden and associated psychological distress. Even though routine distress screening is highly recommended (NBCC, 2003; NCCN, 2008; NICE, 2004), it is hardly ever consistently practised. Furthermore, the challenges usually encountered by clinicians in precisely recognizing anxiety and depression (Fallowfield, Ratcliffe and Jenkins, 2001), underscore the necessity of improving the knowledge of symptoms and distress in clinical assessment to ensure that at-risk patients are identified.

A major limitation of this study relates to the presence of incomplete or missing data especially with regards to cancer stage. This makes it challenging to get conclusive results on the cancer stages as risk factors for depression and anxiety. Another limitation is in the lack of a control sample with which to compare the anxiety and depression prevalence of cancer patients. The limitation not withstanding this study has a lot of merit as it has provided the prevalence of anxiety and depression among cancer patients and has identified some correlates.

Conclusion: There is need to assess all cancer patients on arrival to the clinic for distress as distress assessment is now recognised as the sixth vital sign. Appropriate psychosocial care should be commenced depending on the result of the distress assessment. Psychological evaluation and therapy as may be needed should be administered to all oncology patients preparing for surgery and chemotherapy to enhance their emotional and psychological wellbeing. The findings of this study have implication for establishment of psycho-oncology care in all the cancer centres in Nigeria.

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