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Patient's perception of cancer-related depression/ anxiety during their treatment

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Patient's Perception of Cancer-Related Depression/Anxiety During Their Treatment

by

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Thesis

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Eastern Michigan University

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in

Clinical Research Administration

Thesis Committee:

Stephen Sonstein, Ph.D, Chair

Irwin Martin, Ph.D.

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Abstract

Patients with cancer are emotionally affected during their cancer treatment course. Sometimes, patient's psychological issues are overlooked during the actual disease treatment. Cancer patients are at a higher risk of developing anxiety and depression (A&D). A presumptive diagnosis of anxiety and depression was assessed based on a useful tool, the 14 item Hospital Anxiety and Depression Scale (HADS). Patient responses were assessed for the prevalence of anxiety and depression. In all, 102 patients were studied using the questionnaires of HADS. The demographic and clinical details were collected from patients. Breast cancer patients had the highest prevalence of anxiety (31.6%) and depression (32.4%) among all other cancer patients. Furthermore, cancer patients experienced more anxiety problems than depression. There is a significant relationship between gender and anxiety ($p = .0144$), with females experiencing more anxiety problems than males. 36.2% of patients did not discuss their psychological problems with their oncologist, and 60.8% of patients did not receive any treatment for anxiety and/or depression. Younger patients (< 45 years of age, 50%), males (46.5%), and American Indians (62.5%) received treatment more frequently for anxiety and depression alongside their cancer treatment. Managing the symptoms of anxiety and depression in cancer patients helps in promoting their quality of life and improving the prognosis of the disease. So, it is very important for oncologists to understand the cancer patient's psychological state while giving cancer treatment.

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Chapter 1: Introduction

Although cancer treatment technology has advanced during the past several years, many patients diagnosed with cancer feel that their lives are ending. Patients are distressed and become emotionally compromised, leading to anxiety and depression (A&D). A&D are the two most common psychiatric comorbidities found among cancer patients (Pagoto, 2011).

Sometimes, the patient's psychological issues are overlooked during their actual disease treatment. The primary goal of those involved in cancer treatment is to eradicate the physical symptoms, not necessarily to support the patient emotionally. According to Dr. Rashid (2012), a cancer diagnosis triggers anxiety in up to 40% of patients. Other articles report, the prevalence of A&D in cancer patients as ranging from 25% to 54% (Massie, 2004; Takahashi et al., 2008; Pascoe, Edelman, & Kidman, 2000; Tagay et al., 2006; Clinton-McHarg et al., 2014). The symptoms of anxiety vary from the patient to patient but include feeling fatigue, low appetite or overeating, feeling sad, disturbance in sleep or staying asleep, increased pain perception, irritability, loss of interest, etc. (Rashid, 2012). According to NCI's Depression-Patient Version (PDQ), symptoms of depression include unexplained tiredness, guilty feelings, feeling worthless, frequent thoughts of death or suicide, etc. (Bethesda, 2016).

If A&D is untreated, it may lead to hypertension (abnormally high blood pressure), a serious medical condition, and when these symptoms become overwhelming, they ultimately can lead to suicide attempts. Some previous studies have demonstrated an increased risk for psychiatric morbidity among cancer patients (Aass, Fossa, Dahl, & Aloe, 1997). Galloway et al. (2012) found that A&D triggers pain in breast cancer patients and limits their daily activities.

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Thus, it is very important to understand the cancer patient's psychological status during treatment.

Not all oncologists recommend that their cancer patients receive testing for symptoms of distress (Shimizu, 2013). The ultimate goal of this study was to demonstrate the importance of understanding the patient's psychosocial needs in addition to treating their cancer. No previous studies have addressed the prevalence of A&D in all types of cancer patients and reported the percentage of patients getting treatment for A&D (Massie, 2004; Takahashi et al., 2008; Nikbakhsh, Moudi, Abbasian, & Khafri, 2014). Therefore, this research assessed the A&D prevalence in cancer patients. Early diagnosis of the condition may improve the effectiveness of cancer treatment (Adler, Page, & Institute of Medicine [U.S.], 2008).

The burden of disease and its treatment drive cancer patients to withdraw from their families and other social support systems, which, in turn, may increase their distress and feelings of despair (American Society of Clinical Oncology [ASCO], 2012; <http://www.cancer.net>). As a standard of good cancer care, routine screening for distress is recommended internationally to accompany cancer treatment (Grassi et al., 2013).

In this study, cancer patients who are currently under treatment completed an online survey about their A&D prevalence. Participants were assessed for their A&D with an instrument, Hospital Anxiety and Depression Scale (HADS). Zigmond and Snaith (1983) developed HADS to provide clinicians with an acceptable, reliable, valid, and simple tool to identify and quantify A&D in cancer patients (Stern, 2014). This survey included two additional questions asking whether patient discussed their psychological issues with their oncologists and whether they received treatment for A&D.

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Chapter 2: Thesis Statement

Purpose of the Study

The purpose of this research is to determine the prevalence of cancer-related anxiety and depression (A&D) in patients during their cancer treatment. A second aim of this study is also to find the percentage of patients receiving treatments for their anxiety/depression in addition to treatment for the actual cancer and how it relates to demographic characteristics.

Research Questions

Question 1

What is the prevalence of A&D among cancer patients during their treatment period?

Question 2

Do patients discuss anxiety and depression treatment with their oncologist?

Question 3

Are there any significant relationships between A&D and age, ethnicity, type of cancer, or type of treatment patients are receiving for cancer?

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Chapter 3: Research Design and Methodology

Design and Data Collection

The survey link was posted on various social media sites upon approval by the Eastern Michigan University Human Subjects Review Committee (UHSRC; Appendix A). An URL for the survey via Question Pro® (an online survey website) for the survey was posted to the American Cancer Society and other cancer support groups (e.g., Cancer Support Community, Hopewell Cancer Support) on a Facebook page, Twitter, LinkedIn, and other social media sites (Appendix B). The survey link remained active online for three months. Cancer patients who are currently receiving various treatments for their cancer were eligible to take part in this study. Ineligible participants were redirected to the “Thank You” page, and were unable to see the survey questions. After completing the five demographic questions, two questions related to anxiety and depression scale and two questions related to anxiety and depression (A&D) management (see Appendix C), the participant was directed to click the “submit” button, which submits their anonymous answers. Patients with cancer were assessed for anxiety and depression by using the Hospital Anxiety and Depression Scale (HADS).

Study participants included a sample size of 100 patients with different cancer types, such as breast, prostate, gastrointestinal, leukemia/lymphoma, lung, skin, and bladder/kidney, currently receiving chemotherapy or radiation therapy or who had undergone surgery. Participants were asked to complete the survey questionnaire via various social media pages. Demographic data were collected, including age range, sex, ethnic group, type of cancer, and type of cancer treatment. The correlation was examined between demographic characteristics and the prevalence of anxiety and depression. Through a population size of a minimum of 100,000 (combining members of all social media followers), 102 valid survey responses were

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received from a total of 137 patients who attempted to respond to the survey.

HADS Scale

A presumptive diagnosis of anxiety and depression was based on a 4-point, 14-item Hospital Anxiety and Depression Scale (HADS). The HADS has two subscales for anxiety (seven items) and for depression (seven items; Snaith & Zigmond, 1986). For each item, the respondents were asked to choose which of four options (rated from 0 to 3) comes closest to describing how they have been feeling in the past week. Total scores of each subscale range from 0 to 21. The score of 0–7 means without clinical symptoms of anxiety or depression (normal), 8–10 mild anxiety or depression, 11–14 is a moderate range of anxiety or depression, and 15–21 indicates severe anxiety or depression. For the purpose of analysis, in this study mild, moderate, and severe anxiety or depression scores are taken together as symptomatic anxiety or depression. The data were collected and analyzed using SPSS Version 24. The outcomes were compared with socio-demographic data of the patients.

Statistical Analysis

The data were collected and analyzed using SPSS Version 24. The frequency and descriptive analysis as used to calculate the demographic and clinical distribution of patients. The one-way analysis of variance (ANOVA), independent t-test and chi-square analysis was carried out in order to evaluate the significant relationship of anxiety and depression with age, gender, ethnicity, type of cancer, and treatment type. For the purpose of analysis, severity levels of anxiety and depression were divided into two groups: those who scored 0–7 as normal and those who scored 8 and above as symptomatic anxiety or depression (Bjelland, Dahl, Haug, & Neckelmann, 2002).

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Chapter 4: Results

Demographic Characteristics

Patients who were currently under cancer treatment were eligible to respond to the survey. Out of 151 participants who attempted to respond, 102 valid responses were obtained.

The demographic characteristics of the respondents are presented in Table 1.

Table 1

Overall Cancer Patient's Demographic Characteristics

Demographic characteristics		N	Percent
Response Rate	<i>Completed</i>	137	
	<i>Valid</i>	102	90.7%
	<i>Dropouts</i>	14	
	<i>Total</i>	151	
Age	<i>18–29</i>	4	3.9%
	<i>30–44</i>	14	13.7%
	<i>45–59</i>	37	36.3%
	<i>60+</i>	47	46.1%
Race/Ethnicity	<i>American Indian or Alaskan Native</i>	8	7.8%
	<i>Asian / Pacific Islander</i>	15	14.7%
	<i>Hispanic</i>	4	3.9%
	<i>White/Caucasian</i>	62	60.9%
	<i>Black or African American</i>	13	12.8%
	<i>Other</i>	0	0.0%
Gender	<i>Male</i>	43	42.2%
	<i>Female</i>	59	57.8%

Where N=No. of patients

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Prevalence of Anxiety and Depression

As seen in Table 2, 98 (96.1%) patients had symptomatic anxiety (anxiety score > 8), and but only 71 (69.6%) showed symptomatic depression (depression score > 8). The average anxiety score was 14.5 (SD = 3.3) and for depression was 9.5 (SD = 3.9) on the Hospital Anxiety and Depression Scale (HADS). The average scores indicated that patients were experiencing symptomatic anxiety and depression. In addition, 69.6% of patients were experiencing high frequencies of both anxiety and depression. The results indicate that cancer patients are experiencing more symptomatic anxiety problems than symptomatic depression during their course of cancer treatment. Most of the patients, 31 (30.39%) were undergoing combination therapy (combination of surgery, chemotherapy and radiation therapy) and 30 (29.41%) were undergoing radiation. The remaining patients are either taking chemotherapy or were scheduled for surgery (see Table 2).

Table 2

Overall Cancer Patient's Clinical Characteristics

Clinical characteristics		N (%)
Type of cancer	<i>Breast</i>	31 (30.4)
	<i>Prostate</i>	13 (12.7)
	<i>Gastro</i>	15 (14.7)
	<i>Leukemia</i>	10 (9.8)
	<i>Lung</i>	16 (15.6)
	<i>Skin</i>	3 (2.9)
	<i>Bladder</i>	5 (4.9)
	<i>Others</i>	9 (8.8)
Type of treatment	<i>Chemotherapy</i>	23 (22.5)
	<i>Radiation therapy</i>	30 (29.4)
	<i>Surgery</i>	18 (17.6)
	<i>Combination therapy</i>	31 (30.4)

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Anxiety score	<i>Normal (0–7)</i>	4 (3.9)
	<i>Symptomatic anxiety (8 and above)</i>	98 (96.1)
Depression score	<i>Normal (0–7)</i>	31 (30.4)
	<i>Symptomatic depression (8 and above)</i>	71 (69.6)

Where N=No. of patients

Table 3 indicates that 43.9% of the 60 and above age group were reporting higher frequency of anxiety than any other age groups. 59.2% of females scored 8 and above on the HADS scale indicating the symptoms of anxiety, whereas 40.8% males were experiencing symptomatic anxiety. With regards to ethnicity, 61.2% of White and 14.3% of Asian populations were suffering from anxiety problems (see Table 3).

Table 3

Distribution of Anxiety Diagnosis by Age, Gender, and Ethnicity.

Demographic characteristics		Severity of Anxiety N (%)	
		Normal	Symptomatic Anxiety
Age	<i>18–29</i>	0(0.0)	4 (4.1)
	<i>30–44</i>	0(0.0)	14(14.3)
	<i>45–59</i>	0(0.0)	37(37.6)
	<i>60 and above</i>	4(100)	43(43.9)
Gender	<i>Male</i>	3 (75)	40 (40.8)
	<i>Female</i>	1(25)	58(59.2)
Ethnicity	<i>American Indian</i>	0(0.0)	8(8.2)
	<i>Asian</i>	1(25)	14(14.3)
	<i>Hispanic</i>	0(0.0)	4(4.1)
	<i>White/Caucasian</i>	2 (50)	60(61.2)

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<i>African American/ Black</i>	1(25)	12(12.4)
Total N (%)	4(100)	98 (100)

Where N=No. of patients

In this study, 43.7% of the 60 and above age group patients were experiencing more depression than any other age groups. Sixty-three percent of females scored 8 and above on the HADS scale, indicating the symptoms of depression, whereas 36.6% males experiencing symptomatic depression. Sixty percent of White/Caucasian and 15.5% of Asian population reported a high frequency of depression. Overall, 30.4% of patients were normal and 69.6% of patients were suffering from depression problems during their cancer treatment (see Table 4). There were significant relationships between anxiety and gender ($p = .014$, $p < 0.05$ at CI = 5%). Age had no influence on the occurrence of anxiety and depression ($p > 0.05$). There is no significant relationship between anxiety/depression and ethnicity ($p > 0.05$), as all ethnic groups experienced severe anxiety and depression problems.

Table 4

Distribution of Depression by age, gender, and ethnicity.

Demographic characteristics		Severity of Depression N (%)	
		Normal	Symptomatic Depression
Age	<i>18–29</i>	1(3.2)	3(4.2)
	<i>30–44</i>	2(6.5)	12(16.9)
	<i>45–59</i>	12(38.7)	25(35.2)
	<i>60 and above</i>	16(51.6)	31(43.7)
Gender	<i>Male</i>	17(54.8)	26(36.6)

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	<i>Female</i>	14(45.2)	45(63.4)
Ethnicity	<i>American Indian</i>	1(3.2)	7(9.9)
	<i>Asian</i>	4(12.9)	11(15.5)
	<i>Hispanic</i>	1(3.2)	3(4.2)
	<i>White/Caucasian</i>	19(61.3)	43(60.6)
	<i>African American/ Black</i>	6(19.4)	7(9.9)
Total N (%)		31(100)	71(100)

Where N=No. of patients

In this study, 71 of 98 patients suffered from symptomatic anxiety and depression, a high frequency of symptomatic anxiety and depression was observed in breast cancer patients (A: 31.6% and D: 32.4%), followed by gastrointestinal (A: 14.3%, D: 15.5%) and lung cancer patients (A: 15.3%, D: 14.1%; See Table5).

Table 5

Distribution of Anxiety and Depression Diagnosis in Different Types of Cancer

Type of cancer	Normal		Symptomatic Anxiety/Depression		Total N
	(0-7)		(8-21)		
	N (%)		N (%)		
	A	D	A	D	
Breast	0(0.0)	8(25.8)	31(31.6)	23(32.4)	31(30.4)
Prostate	1(25.0)	8(25.8)	12(12.2)	5(7.0)	13(12.7)
Gastro	1(25.0)	4(12.9)	14(14.3)	11(15.5)	15(14.7)
Leukemia	0(0.0)	1(3.2)	10(10.2)	9(12.7)	10(9.8)
Lung	1(25.0)	6(19.4)	15(15.3)	10(14.1)	16(15.7)
Skin	0(0.0)	0(0.0)	3(3.1)	3(4.2)	3(2.9)

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Bladder	1(25.0)	2(6.5)	4(4.1)	3(4.2)	5(4.9)
Others	0(0.0)	2(6.5)	9(9.9)	7(9.9)	9(8.8)
Total N (%)	4(100)	31(100)	98(100)	71(100)	102(100)

Where N=No. of patients

Patients who received chemotherapy as a single treatment reported more symptomatic anxiety (95.6%) and more symptomatic depression (45.1%) than was observed in cancer patients who received combination therapies (see Table 6).

Table 6

Distribution of Anxiety and Depression with Different Types of Cancer Treatments

Type of cancer treatments	Normal (0–7) N (%)	Symptomatic Anxiety/Depression (8–21) N (%)	Total
Chemotherapy	*A:1(25.0) **D:8 (25.8)	A: 22(22.3) D: 15(21.1)	23(22.5)
Radiation therapy	A:1(25.0) D:4(12.9)	A:29(29.6) D:26(36.6)	30(29.4)
Surgery	A:2(50.0) D:10 (32.2)	A:16 (16.3) D:8 (11.3)	18(17.6)
Combination therapy	A: 0 (0.0) D:9 (29.0)	A:31 (31.6) D:22 (30.1)	31(30.4)
Total N (%)	A:4(100) D:31(100)	A:98(100) D:71(100)	102(100)

*Where N=No. of patients *A: Anxiety **D: Depression*

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Although there were indications of possible differences, anxiety and depression showed no association with type of cancer and type of treatment ($P > 0.05$). But for patients undergoing combination therapy, they showed a high frequency of anxiety (31.6%) with radiation therapy patients showing the highest prevalence of depression (36.6%).

Patients' Perception of Anxiety and Depression Management

Of the respondent patients, 63.7% reported that they discussed their symptoms and treatment for anxiety and depression with their oncologists (see Table 7). Overall, only 39.2% of patients received some treatment for anxiety and depression reduction and 60.8% of patients did not receive any treatment. Of those who discussed their symptoms with oncologists, 38.46% reported that no treatment was recommended by their oncologists (see Table 8). Fifty percent of the younger patients (< 45 years of age) received some treatment for anxiety and depression within their population. Males received treatment more frequently (46.5%) compared to females (33.9%), and American Indians (62.5%) and Asians (46.6%) received treatment more frequently than Caucasians (38.7%), African Americans/Blacks (30.8%), or Hispanics (0%).

Table 7

Overall Number of Patients Received Treatment for Anxiety and Depression

AD Management		N (%)
Patients discussed AD with oncologists?	<i>YES</i>	65 (63.7)
	<i>NO</i>	37 (36.2)
Patients received treatment for AD after discussion?	<i>YES</i>	40 (39.2)
	<i>NO</i>	62 (60.8)

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Table 8

Number of Patients Received Treatment for Their Anxiety and Depression by Demographic Characteristics

Demographics characteristics		Did patient receive any treatment for AD after discussion? N (%)		
		YES N (%)	NO N (%)	Total N (%)
Age	<i>18–29</i>	2 (50.0)	2 (50.0)	4 (100)
	<i>30–44</i>	7 (50.0)	7 (50.0)	14 (100)
	<i>45–59</i>	14 (37.8)	23 (62.1)	37 (100)
	<i>60 and above</i>	17 (36.2)	30 (63.8)	47 (100)
Gender	<i>Male</i>	20 (46.5)	23 (53.5)	43 (100)
	<i>Female</i>	20 (33.9)	39 (66.1)	59 (100)
Ethnicity	<i>American Indian</i>	5 (62.5)	3 (37.5)	8 (100)
	<i>Asian</i>	7 (46.6)	8 (53.3)	15 (100)
	<i>Hispanic</i>	0 (0.00)	4 (100)	4 (100)
	<i>White/Caucasian</i>	24 (38.7)	38 (61.3)	62 (100)
	<i>African American/ Black</i>	4 (30.76)	9 (69.2)	13 (100)
Total		40 (39.2)	62 (60.8)	102 (100)

Where N=No. of patients

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Chapter 5: Discussion

Prevalence of Anxiety and Depression

This study was conducted with cancer patients who were currently receiving some treatment for the progression of their cancer. Out of 151 who attempted to respond to the survey, only 102 valid and complete responses (after excluding the incomplete and dropout responses) were collected and analyzed. In this study, the majority of cancer patients were in the age group of 60+ years (46.08%) followed by age group 45–59 years (36.27%). Among those who responded to the survey, 59 were females and 43 were males (Table 1). Ninety-six percent (symptomatic anxiety) and 69.6% (symptomatic depression) of patients had symptoms of anxiety and depression, respectively (Table 2). Furthermore, cancer patients experienced a higher frequency of anxiety than depression. This finding is supported by a study conducted in India with only breast cancer patients (Srivastava & Ahmad Ansari, 2015), where patients experienced more anxiety problems than depression. But contrasting, a study conducted by Hong and Tian (2013) determined depression to be a more important psychological problem than anxiety in cancer patients (Hong & Tian, 2013). According to Khalil et al. (2016), healthy normal people also may experience some anxiety and fear as part of their life. However, the high frequency of anxiety in cancer patients may be due to physical symptoms caused by cancer itself, like sweating, shortness of breath, dizziness, etc. These symptoms may be due to excessive fear about the cancer progression or the impact of the illness. Patients with anxiety may also experience depression; however, depression can make anxiety worse and vice versa (National Comprehensive Cancer Network [NCCN], 2012; <https://www.nccn.org>).

In this study, age, ethnicity, type of cancer, and type of treatment the patient received had no influence on the occurrence of anxiety ($P > .05$). The only significant difference was shown to

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be between anxiety and gender ($P < .05$). On the other hand, age, gender, ethnicity, type of cancer, and type of treatment the patient received had no influence on the occurrence of depression ($P > .05$). The result indicates that the age of the patients has no significant influence on the prevalence of anxiety and depression. However, according to Cohen (2014), the intensity of the symptoms of depression and anxiety of cancer patient is seen more in the older age group. Anxiety and depression affect more of the older people in the society (Surakarn, Saenubol, & Charupheng, 2016; Graves et al., 2007).

There is a significant relationship proved between anxiety and gender by independent t-test, as females experience more anxiety problems during their cancer treatment than males ($p = .0144$, $p < .05$ significantly related at $CI = 95\%$). This is in accordance with the previous study result where women showed higher rates of anxiety and depression than seen in men (Linden, Vodermaier, MacKenzie, & Grieg, 2012). Fifty-nine percent females scored 8 and above on the Hospital Anxiety and Depression Scale (HADS), indicating the symptoms of anxiety, whereas 40.8% of males were experiencing symptomatic anxiety. Saiz González et al. (2009) reported that women are more likely to report their psychological symptoms than men are. There is no detectable difference between gender and depression, which is in accordance with the study result of Khalil et al. (2016), which has proved that, gender is not a significant contributor to depression and anxiety in cancer patients. These results contradict a study by West et al. (2015) that indicated significant gender differences in male and female anxiety and depression in cancer patients.

Furthermore, based on ethnicity, no significant differences were detected between ethnicity and anxiety. These results contradict the study result of Asnaani, Richey, Dimaite, Hinton, and Hofmann (2010), where White/Caucasian people were more likely to be diagnosed

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with anxiety disorders in relation to other ethnicities. Statistical significance was not detected between ethnicity and depression. This result contradicts a previous study result, where White/Caucasian individuals who are living in poverty had higher lifetime prevalence rates of major depressive disorder than other ethnic groups (Riolo, Nguyen, Greden, & King, 2005). In addition, the previous study researchers concluded that African American women live with greater stress than White/Caucasian women do, but their coping strategies may make them less vulnerable to the impact of chronic strain (Watson, Roberts, & Saunders, 2012). Overall, 30.4% of patients are normal, and 69.6% of patients are suffering from depression problems during their cancer treatment (see Table 4).

This study demonstrates that type of cancer is not related to the prevalence of anxiety and depression. The current research findings contradict the previous research findings of a study at the Babol Hospital in Iran, where breast and stomach cancer patients had the highest prevalence of anxiety and depression (Nikbakhsh, Moudi, Abbasian, & Khafri, 2014). Another study reported that patients with lung, esophagus, and cervical cancer are most affected with depression (Hong & Tian, 2013). Breast surgery, body image, cancer spreading, death, and health issues result in the highest prevalence of anxiety and depression in breast patients (Baqutayan, 2012; Nikbakhsh, Moudi, Abbasian, & Khafri, 2014). Another study reported that the high frequency of anxiety and depression in lung cancer patients is associated with their physical symptoms like a cough, dyspepsia, haemoptysis, etc. (Buchanan, Milroy, Baker, Thompson, & Levack, 2009). Colostomy consequences, like fatigue, weight loss, and disease severity, suggest the evidence of anxiety and depression in gastrointestinal cancer patients (Bullen et al., 2012). There was no statistical significance seen between anxiety/depression and type of cancer treatment. The current findings contradict the previous research findings, where

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patients who received chemotherapy had the highest prevalence of both anxiety and depression (Nikbakhsh, Moudi, Abbasian, & Khafri, 2014).

Anxiety and Depression Treatment

Of the respondents, 36.2% did not discuss their psychological problems with their oncologist. The total number of patients that received treatment for both depression and anxiety represent 39.2% of all the patients. Forty out of 65 patients who discussed their anxiety and depression received some treatment for their anxiety and depression reduction (see Table 7). The reluctance of oncologists to suggest a treatment for anxiety and depression may be due to the fact that although the majority of psychological issues in oncology is in response to the psychological stressor of having a life-threatening illness, some psychological/psychiatric issues are biologically induced or result from other medications (McFarland & Holland, 2016). Moreover, in a previous study of the prevalence of depression in cancer patients, researchers found that, although patients were diagnosed as being depressed and referred for psychiatric consultation, the prevalence of major depression still ranged from 9% to 58% (Massie, Lloyd-Williams, Irving, & Miller, 2010).

Of the patients that received treatment, 50% of them were in the 18–44 age group 37.8% were 45–59 years of age, and 36.2% were over age 60. The trend indicates that the younger patients were more likely to receive treatment for anxiety and depression than older patients. Based on the depression scores (see Table 4), younger patients (18–44) reported a lower percentage of depression than older patients (45 and above), but 50% of younger patients received medications for their anxiety and depression. This study result is similar to a previous research result reported by Fischer, Wei, Solberg, Rush, and Heinrich (2003), which showed that physicians were more likely to diagnose depression in younger patients and ask about current

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symptoms of depression, alcohol problems, and suicide risk than in older patients. Depressed elderly patients were less likely to be given a prescription for any medication for depression compared to younger depressed patients (Fischer et al., 2003). Based on gender, 46.5% and 33.9% of males and females received treatment for anxiety and depression, respectively. Females have much higher symptomatic depression (63.4%) than males, but out of 57.8% of females responded to the survey, only 33.9% received treatment. The oncologist should keep in mind while treating the patient for anxiety or depression, female patients experience more psychological problems than men, so women need more attention. Lastly, with relation to the ethnicity of the patients who received treatment, American Indian patients represented the highest percentage at 62.5% followed by Asians at 46.6%. Caucasians represented 38.7%, while African American/Black patients were 30.76%. Of the Hispanic patients in the study, none received treatment for anxiety or depression. Further, African American/Black and Hispanics were less likely to show anxiety and depression related disorders. This finding is in accordance with the study report by Lagomasino, Stockdale, and Miranda (2011), where African American/Black and Hispanic were less likely to receive antidepressant prescriptions or any care for depression or anxiety when compared to White/Caucasian people. Overall, 60.8% patients reported that no treatment was recommended for anxiety or depression by their oncologist.

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Chapter 6: Conclusion

The majority of cancer patients are distressed due to their health status despite the advancement of new technologies for cancer treatment. These patients are emotionally disturbed, which in turn contributes to psychiatric problems such as anxiety and depression. The findings of this study show the significance of assessing the psychological conditions of cancer patients before treatment. This calls for the healthcare providers to not only provide treatment to the cancer patients but also assess their psychological status. This would assist in minimizing the psychiatric symptoms while delivering effective care treatment among the cancer patients. In case, the conditions become worse, the oncologists can refer the patients to psychologists or any social support groups for effective management. Anxiety and depression have a great effect on the feeling of cancer patients and it leads to high level of coping mechanisms. Managing the symptoms of anxiety and depression in cancer patients helps in promoting their quality of life and improving the prognosis of the disease. As such, assessing the psychological status of cancer patients before treatment should be one of the key concerns for the oncologists and other healthcare professionals. Some limitations of the study should be briefly mentioned. There was no statistical significance proved between anxiety/depression with other demographic criteria and other cancer clinical data. Two possible explanations exist for the lack of detectable differences between psychological problems and age, ethnicity, gender, type of cancer and type of cancer treatment. Firstly, it is possible that there were no significant differences. Secondly, statistical tests provided little power to detect the difference between the variables due to high variability and insufficient sample size. The patients were not questioned about their past psychiatric history of anxiety and depression. Future studies should examine rates of anxiety and depression before and after the treatment in cancer patients in a large diverse population. Those

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results will help to conclude whether the treatment helps to reduce anxiety and depression in cancer patients. In conclusion, the prevalence of anxiety and depressive disorders is higher in cancer patients, but the treatment rate by physicians is low.

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APPENDICES

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Appendix A: Approval Letter from EMU Human Subject Review Committee

RESEARCH @ EMU

UHSRC Determination: EXEMPT

DATE: May 25, 2016

TO: Nisha devi Muthu krishnan, MS
Eastern Michigan University

Re: UHSRC: # 902798-1
Category: Exempt category 2
Approval Date: May 25, 2016

Title: Patient's perception of cancer related anxiety and depression during their treatment

Your research project, entitled **Patient's perception of cancer related anxiety and depression during their treatment**, has been determined **Exempt** in accordance with federal regulation 45 CFR 46.102. UHSRC policy states that you, as the Principal Investigator, are responsible for protecting the rights and welfare of your research subjects and conducting your research as described in your protocol.

Renewals: Exempt protocols do not need to be renewed. When the project is completed, please submit the **Human Subjects Study Completion Form** (access through IRBNet on the UHSRC website).

Modifications: You may make minor changes (e.g., study staff changes, sample size changes, contact information changes, etc.) without submitting for review. However, if you plan to make changes that alter study design or any study instruments, you must submit a **Human Subjects Approval Request Form** and obtain approval prior to implementation. The form is available through IRBNet on the UHSRC website.

Problems: All major deviations from the reviewed protocol, unanticipated problems, adverse events, subject complaints, or other problems that may increase the risk to human subjects or change the category of review must be reported to the UHSRC via an **Event Report** form, available through IRBNet on the UHSRC website

Follow-up: If your Exempt project is not completed and closed after **three years**, the UHSRC office will contact you regarding the status of the project.

Please use the UHSRC number listed above on any forms submitted that relate to this project, or on any correspondence with the UHSRC office.

Good luck in your research. If we can be of further assistance, please contact us at 734-487-3090 or via e-mail at human.subjects@emich.edu. Thank you for your cooperation.

Sincerely,

Sonia Chawla, PhD
Research Compliance Officer

Appendix B: Sample survey invitation

**Take part in this cancer
related
anxiety & depression
SURVEY!**

Your input is very valuable.

Please click here for the survey:
<http://anxiety-depression.questionpro.com>



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Appendix C: Sample Survey Form

Dear Sir or Madam,

You are invited to participate in a survey on "Patient's perception of cancer related Depression/Anxiety during their treatment". The survey is being conducted as a part of the Thesis requirement for a Master's degree, by Ms. Nisha Devi Muthu Krishnan from Eastern Michigan University.

In this survey, patients with cancer are asked to answer questions about emotional issues during their cancer treatment. The survey responses will be used to assess the level of depression and/or anxiety in cancer patients.

Informed Consent Agreement

Purpose: The purpose of this research study is to find out the prevalence rate of anxiety and depression in cancer patients during their treatment.

Funding: This research is unfunded.

Study Procedures: Participation in this study involves completing an online survey. It should take 10 minutes to complete the questionnaire.

Risks: There are no foreseeable risks associated with this project. Some of the survey questions are personal in nature, about your cancer and may make you feel uncomfortable. You do not have to answer any questions that make you uncomfortable or that you do not want to answer.

Benefits: You will not directly benefit from participating in this research. Benefits to future cancer patients, their psychosocial issues will also be given importance besides getting treatment for their tumor.

Confidentiality: Your survey responses will be strictly confidential; we will not collect your name and other personal identifiers. Your information will be stored in a password-protected computer file. Data from this research will be reported only in aggregate. The results of this research may be published or used for teaching.

Compensation: Participants will not be compensated by any means.

Contact Information: If you have any questions about the research, you can contact the Principal Investigator, Nisha Devi Muthu Krishnan, at nmuthukr@emich.edu or by phone at 248-345-1241. You can also contact Nisha's adviser, Dr. Stephen Sonstein, at ssonstein@emich.edu or by phone at 734-487-1238.

For questions about your rights as a research participant, you can contact the Eastern Michigan University Office of Research Compliance at human.subjects@emich.edu or by phone at 734-487-3090.

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Voluntary participation

Participation in this research study is your choice. You may choose not to participate. If you decide to participate in this research survey, you may withdraw at any time by clicking close or done button.

*ELECTRONIC CONSENT: Clicking on the "agree" button below indicates that:

- You have read the above information
- You voluntarily agree to participate
- You are at least 18 years of age

Agree

Are you currently receiving cancer treatment?

1. Yes
2. No

Age

1. 18-29
2. 30-44
3. 45-59
4. 60+

Gender

1. Male
2. Female

Which race/ethnicity best describes you?

1. American Indian or Alaskan Native
2. Asian / Pacific Islander
3. Hispanic
4. White/Caucasian
5. Black or African American
6. Other _____

Please mention your type of cancer (Select all that apply)

1. Breast
2. Prostate
3. Gastrointestinal
4. Leukemia/lymphoma
5. Lung
6. Skin
7. Bladder/kidney
8. Other _____

What type of treatment are you taking for your cancer? (Select all that apply)

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1. Chemotherapy
2. Radiation therapy
3. Surgery
4. Combination therapy
5. Other

How have you been feeling in the past week (Anxiety related)?

	Yes definitely (3)	Yes sometimes (2)	No, not much (1)	No, not at all (0)
I feel tense or wound up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I get a sort of frightened feeling as if something bad is about to happen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worrying thoughts go through my mind	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can sit at ease and feel relaxed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I get a sort of frightened feeling like butterflies in the stomach	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I feel restless and have to be on the move	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I get sudden feelings of panic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How have you been feeling in the past week (Depression related)?

	Yes definitely (0)	Yes Sometimes (1)	No, not much (2)	No, not at all (3)
I still enjoy the things I used to enjoy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can laugh and see the funny side of things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I feel cheerful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I feel as if I am slowed down	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I have lost interest in my appearance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I look forward with enjoyment to things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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I can enjoy a good book or radio or TV programme	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Have you ever discussed your depression/anxiety issues with your oncologists?

1. Yes
2. No

Did you receive any treatment for your depression/anxiety?

1. Yes
2. No