

# Depression, Anxiety and Quality of Life among Cancer Patients: A Cross-Sectional Study in Saudi Arabia

Nouf Almutairi<sup>1\*</sup>, Maryam Alharbi<sup>2</sup>, Baraa M. Hammoudi<sup>3</sup> and Othman Almutairi<sup>4</sup>

<sup>1</sup>Department of Oncology and Liver Diseases, King Faisal Hospital and Research Center, Riyadh, KSA

<sup>2</sup>Oncology and Haematology Center, King Fahad Medical City, National Guard Hospital Oncology, Riyadh, KSA

<sup>3</sup>Hematopoietic Stem Cell Transplantation Unit, Comprehensive Cancer Center, King Fahad Medical City, Riyadh, KSA

<sup>4</sup>National Neuroscience Institute, King Fahad Medical city, Riyadh, KSA

## Abstract

**Introduction:** Cancer patients have higher incidence of anxiety and depression which have a negative impact on the quality of their life independently and dependently from cancer. This Study was conducted to assess the relationship of anxiety, depression and quality of life among cancer patients in Saudi Arabia.

**Methods:** This is a cross-sectional study conducted on cancer patients who underwent routine Outpatient health-care services in a tertiary care hospital in Riyadh, Saudi Arabia.

**Results:** In this study 393 cancer patients were included. Majority of them were females, married, aged between 40-60 years old. In 31% of patients had breast cancer and the 2<sup>nd</sup> most prevalent cancer was lymphoma (7.3%). Majority of patients had neither depression nor anxiety with the following rates respectively [71.1%, 86.1%]. The assessed quality of life components showed the following ; (51%) had a low quality of life, (56.7%) had a low independent lifestyle, (60.5%) low psychological coping, (52%) had high pain occurrence, (64.8%) had a good relationship, (86.1%) good senses and (57%) had good mental health. Anxiety and depression [AD] score was found to be statistically significant in 32.4% of patients in the following components ; Age less than 30 years old, having lymphoma or ovarian cancer, being divorced, having a bachelor degree or no education at all and the need of a caregiver.

**Conclusion:** The prevalence of low QOL (Quality of Life) is high among Saudi Cancer patient and the coexistence of anxiety occurred only in one third of all patients. Anxiety and depression appear to be not contributing to the low quality of life in cancer patients except in certain subgroups in which psychological interventions shall improve the quality of their lives.

**Keywords:** Depression • Anxiety • Radiotherapy • QOL: Quality of Life

## Introduction

Cancer is considered a worldwide health problem in the public [1-3]. WHO definition of health emphasizes health is not a state of disease-free living but a complete mental, physical and social wellbeing [4-9]. Quality of life (QOL) is a reflection of the patient's own psychological, physical, social and cognitive well-being [8]. Mental health disorders exist in one-third of all cancer patients mandating psychological assessment and treatment [3]. Anxiety and depression are reported as a common psychological distress in cancer patients secondary to surgical interventions, long-term intensive therapies such as radiotherapy and chemotherapy [4,5]. It was found that anxiety, depression and QOL are affected by the patient's demographics and socio-economical status such as age, social support and financial status [10-13].

Side effects from cancer treatment are considered as an important factor that affect the patient's QOL [14]. Many Studies have highlighted that cancer diagnosis, treatment and psycho-physical symptoms affects the patient's QOL negatively and hinders treatment's adaptation [15,16]. Another study found that the duration of the disease increased the duration of anxiety and depression which leads to a lower QOL [17]. Families of cancer patients face several challenges in during the patient's medical journey and it affects their QOL significantly [6,7]. Psychological well-being and QOL are considered among the predictors of patient's survival [11].

Contemporary advances in Cancer therapies have improved the survival rate

**\*Address for Correspondence:** Nouf Almutairi, Department of Oncology and Liver Diseases, King Faisal Hospital and Research Center, Riyadh, KSA, Tel: 0096533102756; E-mail: noufalmutairi11@gmail.com

**Copyright:** © 2020 Almutairi N. This is an open-access article distributed under the terms of the creative commons attribution license which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

**Received** 02 April, 2020; **Accepted** 12 May, 2020; **Published** 20 May, 2020

in patients and the importance of improving the QOL and psychological support is considered an essential part of the treatment [13]. Factors that affected the QOL in cancer patients have been the attention of several researchers internationally to improve the patient's life [12].

## Methods

This is a cross-sectional study on cancer patients receiving routine outpatient health care services in the comprehensive cancer center in King Fahad Medical City in Riyadh, Saudi Arabia. Written consent after explaining the study and the participant's role was obtained. We collected data on patient's demographics [Sex, Age, Marital Status, and Degree of education] and cancer origin [Breast, Lymphoma, Ovarian, colorectal and others]. The utilized questionnaires were the internationally known Hospital Anxiety and Depression scale (HADS) and Assessment of quality of life (AQOL-6D) with some add on questions.

After confidentiality assurance to all study participants statistical analysis was performed using SPSS software version 22. Statistical parameters such as chi-square were used for subgroup analysis and a P-value of less than 0.05 was considered statistically significant.

## Results

In this study we included three hundred ninety-three cancer patients. About 50% of patients aged between 41-60 years old. Females accounted for about 70% of all participants. Among participants 70% of them were married. The most common type of cancer was breast cancer which was evidenced in 25% of all patients. In our study 57% of all subjects declared a need for a caregiver from a family member or a health care provider (Table 1).

Assessment of quality of life questionnaire showed that more than half of cancer patients had low independent lifestyle (56.7%), low coping (60.5%), high pain (52.9%) and low quality of life (51.1%). However, the majority of participants had a good relationship (64.8%), good senses (86.1%), and good mental health (57%) (Table 2).

The questionnaire utilizing HADS illustrated that the majority of patients

(86.3%) were anxiety free and depression didn't exist in (71%) of all study participants. More than half of the patients had a low independent lifestyle (56.7%), low psychological coping (60.5%), high frequency of pain (52.9%) and low quality of life (51.1%). On the other hand more than half of the subjects have shown good social relationship status (64.8%), had good senses (86.1%) and good mental health (57%). The overall anxiety-depression score was positive in 32% of all cancer patients (Table 3).

In another statistically significant correlative analysis of patients factors and the co-existence of anxiety and depression have showed that the following patient factors are implicated such as; age of less than 30 years old are more affected [0.034], having lymphoma or ovarian cancer [0.021 and 0.039], being divorced [0.004], having no education or a bachelor degree [0.000 and 0.002], having a need for a caregiver [0.000] (Table 4).

A correlative analysis of the patients demographics and the quality of life have showed a statistical significance in patients with the following factors; age between 61-70 [0.006] or younger than 30 years old [0.008], being single [0.005] or divorced [0.008], having no education [0.005] or a bachelor degree [0.008] and the need for a caregiver [0.000] (Table 5).

## Discussion

In the current literature no studies have been done in the Arabic world on the

**Table 1.** Patient's demographics.

(n=395)	
Age	
<30	55 (13.9)
31-40	52 (13.2)
41-50	87 (22)
51-60	108 (27.3)
61-70	66 (16.7)
71+	27 (6.8)
Diagnosis	
Lung CA	15 (3.8%)
Breast CA	102 (25.95%)
Colorectal CA	36 (9.1%)
Leukaemia	30 (7.6%)
Lymphoma	45 (11.45%)
Colon CA	16 (4%)
Pancreas	11 (2.79%)
Brain	17 (4.32%)
Cervical	21 (5.34%)
Thyroid	12 (3.05%)
Others	88 (22.39)
Gender	
Male	122 (30.9)
Female	273 (69.1)
Marital Status	
Single	65 (16.5)
Married	277 (70.1)
Divorced	17 (4.3)
Widow	36 (9.1)
Education	
Not educated	98 (24.8)
Primary	90 (22.8)
High school	104 (26.3)
Bachelor's degree	103 (26.1)
Caregiver	
I need a caregiver from a family or health care provider.	227 (57.5)
I don't need a caregiver.	168 (42.5)

**Table 2.** Components assessed in the quality of life questionnaire (ADQL-6D).

Independent lifestyle	
High	171 (43.3)
Low	224 (56.7)
Relationship	
Good	256 (64.8)
Bad	139 (35.2)
Mental health	
Good	225 (57)
Bad	170 (43)
Coping	
High	156 (39.5)
Low	239 (60.5)
Pain	
Low	186 (47.1)
High	209 (52.9)
Senses	
Good	340 (86.1)
Bad	55 (13.9)
AQ	
High	193 (48.9)
Low	202 (51.1)

**Table 3.** Assessed components in the Hospital Anxiety and Depression Scale (HADS).

Anxiety	
11-21 = Abnormal (case)	54 (13.7)
8-10 = Borderline	64 (16.2)
0-7 = Normal	277 (70.1)
Anxiety	
+VE	54 (13.7)
-VE	341 (86.3)
Depression	
11-21 = Abnormal (case)	114 (28.9)
8-10 = Borderline	100 (25.3)
0-7 = Normal	181 (45.8)
Depression	
+VE	114 (28.9)
-VE	281 (71.1)
AD score	
+VE	128 (32.4)
-VE	267 (67.6)
Independent lifestyle	
High	171 (43.3)
Low	224 (56.7)
Relationship	
Good	256 (64.8)
Bad	139 (35.2)
Mental health	
Good	225 (57)
Bad	170 (43)
Coping	
High	156 (39.5)
Low	239 (60.5)
Pain	
Low	186 (47.1)
High	209 (52.9)
Senses	
Good	340 (86.1)
Bad	55 (13.9)

AQ		
High		193 (48.9)
Low		202 (51.1)

**Table 4.** Anxiety and depression associated patient's factor.

Variables	+VE (n=128)	-VE (n=267)	P Value*
Age			
<30	11 (8.6)	44 (16.5)	0.034
31-40	12 (9.4)	40 (15)	0.123
41-50	34 (26.6)	53 (19.9)	0.132
51-60	40 (31.3)	68 (25.5)	0.228
61-70	22 (17.2)	44 (16.5)	0.860
71+	9 (7)	18 (6.7)	0.915
DX			
Breast cancer	32 (25)	67 (25.1)	0.984
Lymphoma	5 (3.9)	29 (10.9)	0.021
Colorectal cancer	8 (6.3)	26 (9.7)	0.247
Leukaemia	2 (1.6)	10 (3.7)	0.352
Lung cancer	1 (0.8)	7 (2.6)	0.446
Ovarian cancer	5 (3.9)	2 (0.7)	0.039
B cell lymphoma	2 (1.6)	4 (1.5)	1.000
Osteosarcoma	1 (0.8)	3 (1.1)	1.000
Prostate cancer	0 (0)	1 (0.4)	1.000
Others	72 (56.3)	118 (44.2)	0.025
Gender			
Male	35 (27.3)	87 (32.6)	0.291
Female	93 (72.7)	180 (67.4)	
Marital			
Single	17 (13.3)	48 (18)	0.239
Married	86 (67.2)	191 (71.5)	0.377
Divorced	11 (8.6)	6 (2.2)	0.004
Widow	14 (10.9)	22 (8.2)	0.383
Education			
Not educated	46 (35.9)	52 (19.5)	0.000
Primary	33 (25.8)	57 (21.3)	0.326
High school	28 (21.9)	76 (28.5)	0.164
Bachelor's degree	21 (16.4)	82 (30.7)	0.002
Caregiver			
I need a caregiver	100 (78.1)	127 (47.6)	0.000
I don't need a caregiver	28 (21.9)	140 (52.4)	
AQ			
High	12 (9.4)	181 (67.8)	0.000
Low	116 (90.6)	86 (32.2)	

**Table 5.** Quality of life associated patient factors.

	High (n=193)	Low (n=202)	P value*
Age			
<30	36 (18.7)	19 (9.4)	0.008
31-40	30 (15.5)	22 (10.9)	0.172
41-50	45 (23.3)	42 (20.8)	0.545
51-60	51 (26.4)	57 (28.2)	0.689
61-70	22 (11.4)	44 (21.8)	0.006
71+	9 (4.7)	18 (8.9)	0.094
DX			
Breast cancer	51 (26.4)	48 (23.8)	0.542
Lymphoma	20 (10.4)	14 (6.9)	0.224
Colorectal cancer	18 (9.3)	16 (7.9)	0.619
Leukemia	9 (4.7)	3 (1.5)	0.066

Lung cancer	5 (2.6)	3 (1.5)	0.495
Ovarian cancer	2 (1)	5 (2.5)	0.450
B cell lymphoma	2 (1)	4 (2)	0.686
Osteosarcoma	3 (1.6)	1 (0.5)	0.362
Prostate cancer	1 (0.5)	0 (0)	0.489
Others	82 (42.5)	108 (53.5)	0.029
Gender			
Male	68 (35.2)	54 (26.7)	0.068
Female	125 (64.8)	148 (73.3)	
Marital			
Single	42 (21.8)	23 (11.4)	0.005
Married	134 (69.4)	143 (70.8)	0.826
Divorced	3 (1.6)	14 (6.9)	0.008
Widow	14 (7.3)	22 (10.9)	0.209
Education			
Not educated	27 (14)	71 (35.1)	0.000
Primary	37 (19.2)	53 (26.2)	0.094
High school	57 (29.5)	47 (23.3)	0.158
Bachelor's degree	72 (37.3)	31 (15.3)	0.000
Caregiver			
I need a caregiver	70 (36.3)	157 (77.7)	0.000
I don't need a caregiver.	123 (63.7)	45 (22.3)	

quality of life and the coexistence of anxiety and depression among cancer patients hence this study is considered the 1<sup>st</sup> to the best of our knowledge.

Our study showed that the rate of anxiety (13.7%) and depression (29%) among cancer patients is lower than the published rates by Ahmed et al. [18] which illustrated a prevalence of subjective depression (44.8%), anxiety (52.5%) and stress (42.7%) in cancer patients. The reported rates may vary as there are no baseline rates for anxiety and depression in Saudi Arabia for cancer patients in general.

A study on radiotherapy cancer receiving patients in Saudi Arabia by Almighal et al. [19] demonstrated a high rate of Anxiety (66%) and depression (67%) as compared to our rates in their psych-oncology screening tool on 148 patients. A comparative study was conducted in Germany by Frick et al. [20] which showed that radiotherapy receiving patients had a rate of 9.5% for anxiety and/or depression in their HADS score on 63 patients.

As a known fact that breast cancer is the most commonly diagnosed cancer among women according to WHO; to which 25% of our subjects had breast cancer. A study was done on breast cancer affected subjects in Levant (Syria, Lebanon, Palestine) showed a lower prevalence of Anxiety (41%) and depression (24%) similar to our all over rate of anxiety and depression. An observational study on breast cancer patients over 5 years by Giese-Davis et al. [21] showed that about 50% of breast cancer affected patients had anxiety and depression in the 1<sup>st</sup> year and the rate dropped to 15% in 5<sup>th</sup> year while 45% of patients have anxiety or/and depression within 3 months from diagnosis.

Another study by Zaben et al. [22] that assessed anxiety and marital quality in breast cancer Saudi patients showed that only 10% of patients had anxiety and 15% of subjects had a probable anxiety disorder with no significant relationship between marriage quality and breast cancer but they had only 49 patients in their study.

Colorectal cancer is considered one of the most common cancers in men and women worldwide and around 9% of our patients had colorectal cancer. A systematic review was conducted by Peng et al. [23] which included 15 articles from 1967 to 2018 and it showed a prevalence for depression (1.6%-57%) and anxiety (1%-47%) in the studied population (93,805); an interesting conclusion from this review is the lower reported rates of anxiety and depression in the studies that have utilized a psychiatrist to administer the standardized diagnostic assessment as compared to the research assistant administrator utilizing the same surveys.

The sub-grouping assessment of different age groups in our study demonstrated

a statistically significant correlation in patients under the age of 30 years old with anxiety and depression. A study on Saudi cancer patients by Almigbal et al. [19] showed that age is a significant predictor of psychological distress. On the other hand, our study showed a low quality of life in patients older than 61 years old with cancer.

A systematic review by Peng et al. [23] on CRC patients showed that the included studies found that depression rate is higher in older and young patients; anxiety was found to be higher in elderly patients with one study showing no correlation of Anxiety and depression with age.

The analysis of the marital status of the patients showed that, divorced subjects showed the highest rate of anxiety and depression and a lower quality of life when compared to the other marital based subgroups. In two studies by Ahmed et al. [18] and Al-Zaben et al. [22] showed no correlation between marital status and anxiety and depression.

In our study, patients with no education showed higher rates of anxiety and depression and lower quality of life when compared to other educational subgroups. While patients with a bachelor degree are showing a lower rate for anxiety, depression and higher quality of life as compared to other subgroups. In contradiction to our conclusion a study by Ahmed et al. [18] on Saudi patients which showed that high level of formal education increases the psychological symptoms.

The site of cancer didn't affect the prevalence of anxiety, depression or the quality of life in our study. A study by Almigbal et al. [19] on Saudi patients showed that breast cancer patients are more depressed than colorectal cancer patients. Another study by Abulkhair et al. [24] that was conducted in USA showed that patients with lung, gynaecological and haematological cancer have a higher rate of depression and distress while another review by Silva et al. [25] have shown a non-significant association between cancer type and psychological disorders.

The coexistence of depression and/or anxiety has a substantial impact on the patient's quality of life and overall prognosis. A meta-analysis by Ferlay et al. [26] showed that depression predicted mortality with a 26% mortality rate with depressive symptoms and 39% mortality rate in patients with major depression. Another review by Astin et al. [27] showed that patients with depression have a higher mortality rate by 25% when compared to non-depressed subjects.

## Conclusion

In conclusion, this presented study have a substantial impact because in Saudi Arabia we don't have enough published papers on quality of life, anxiety or depression in cancer patients and this study will guide future researchers to execute prospective studies in order to improve the overall prognosis of patients and their quality of life. On the other hand, our study have the following limitations ; our study lacked the timing of diagnosis as mentioned above where the rate of anxiety and depression have decreased overtime in diseased patients, in our survey a researcher conducted the interview and not a psychiatrist which might have exaggerated the rates of anxiety and depression, the inherited limitation of cross sectional studies where association can be proved and causation can be detailed and lastly the generalizability of the HADS and ADQL international questionnaire on the Saudi population and the lack of such questionnaire from the Saudi ministry of health might have decreased the specificity of our survey.

## References

- Bektas, Didem and Demir Sati. "Anxiety, depression levels and quality of life in patients with gastrointestinal cancer in Turkey." *Asian Pac J Cancer Prev* 17 (2016): 723-731.
- Tokgoz, Gui. "Prevalence of major depression in patients with tokgoz and related factors." *Anadolu Psikiyatri Dergisi* 9 (2008): 59-66.
- Singer, Susanne, Das-Munshi Jayathi and Brähler Elmar. "Prevalence of mental health conditions in cancer patients in acute care: A meta-analysis." *Ann Oncol* 21 (2010): 925-930.
- Rajandram Rama, Ho M. Samuel, Samman Nabil and Natalie Chan, et al. "Interaction of hope and optimism with anxiety and depression in a specific group of cancer survivors: A preliminary study." *BMC Res Note* 4 (2011): 519.
- Dedeli, Ozden, Fadiloglu Cicek and Uslu Ruchan. "A survey of functional living and social support in patients with cancer." *J Turk Oncol* 23 (2008): 132-139.
- Ferrell, Betty, Marcia Grant, Brandi Funk and Shirley Otis-Green, et al. "Quality of life in breast cancer: Physical and social well-being." *Cancer Nurs* 20 (1997): 398-408.
- Petrie, Wendy, Jo Logan and Cathy DeGrasse. "Research review of the supportive care needs of spouses of women with breast cancer." *Oncol Nurs Forum* 28 (2001): 16-21.
- O'Neil, Adrienne, Christopher E. Stevenson, Emily D. Williams and Duncan Mortimer, et al. "The health-related quality of life burden of co-morbid cardiovascular disease and major depressive disorder in Australia: Findings from a population-based, cross-sectional study." *Qual Life Res* 22 (2013): 37-44.
- Hussein, Imad. "The relationship between perfectionism and loneliness, and quality of life of medical students in Guilan province." *Islamic Azad University of Tonkabon* 12 (2011): 18-22.
- Althubiti, Mohammad and Mohamed M. Nour-Eldein. "Trends in the incidence and mortality of cancer in Saudi Arabia." *Saudi Med J* 39 (2018): 1259.
- Pinquart, Martin and Duberstein. "Depression and cancer mortality: A meta-analysis." *Psychol Med* 40 (2010): 1797-1810.
- Anguiano, Linda, Deborah K. Mayer, Mary L. Piven and Donald Rosenstein. "A literature review of suicide in cancer patients." *Cancer Nurs* 35 (2012): 14-26.
- Arrieta, Óscar, Laura P. Angulo, Carolina Núñez-Valencia and Yuzmiren Dorantes-Gallareta, et al. "Association of depression and anxiety on quality of life, treatment adherence, and prognosis in patients with advanced non-small cell lung cancer." *Ann Surg Oncol* 20 (2013): 1941-1948.
- Centers for Disease Control and Prevention (CDC). "Health-related quality of life (HRQOL) concepts." (2019)
- Clark, Matthew, Michael Bostwick, and Teresa A. Rummans. "Group and individual treatment strategies for distress in cancer patients." *Mayo Clin Proc* 78 (2003) 1538-1543.
- Clark, Matthew, Teresa A. Rummans, Pamela J. Atherton and Andrea L. Cheville, et al. "Randomized controlled trial of maintaining quality of life during radiotherapy for advanced cancer." *Cancer* 119 (2013): 880-887.
- Barbara, Given, Charles W. Given and Sharon Kozachik. "Family support in advanced cancer." *Cancer J Clinician* 51 (2001): 213-231.
- Ahmed, Anwar, Alhanouf N. Albalawi, Eiman T. Qureshey and Aisha T. Qureshey, et al. "Psychological symptoms in adult Saudi Arabian cancer patients: Prevalence and association with self-rated oral health." *Breast Cancer* 10 (2018): 153.
- Almigbal, Turki, Khalid M. Almutairi, Jack B. Fu and Jason M. Vinluan, et al. "Assessment of psychological distress among cancer patients undergoing radiotherapy in Saudi Arabia." *Psychol Res Behav Manag* 12 (2019): 691.
- Frick, Eckhard, Michael Tyroller and Michael Panzer. "Anxiety, depression and quality of life of cancer patients undergoing radiation therapy: A cross sectional study in a community hospital outpatient centre." *Eur J Cancer Care* 16 (2007): 130-136.
- Giese-Davis, Janine, Kate Collie, Kate M. Rancourt and Eric Neri et al. "Decrease in depression symptoms is associated with longer survival in patients with metastatic breast cancer: A secondary analysis." *J Clin Oncol* 29 (2011): 413.
- Al-Zaben, Faten, Mohammad G. Sehlo and Harold G. Koenig. "A cross-sectional study of anxiety and marital quality among women with breast cancer at a university clinic in western Saudi Arabia." *Saudi Med J* 36 (2015): 1168.
- Peng, Yu-Ning, Mei-Li Huang and Chia-Hung Kao. "Prevalence of depression and anxiety in colorectal cancer patients: A literature review." *Int J Environ Res Public Health* 16 (2019): 411.
- Abulkhair, Omalkhair, Fatima M. Al-Tahan, Susan E. Young and Salma M. Musaad, et al. "The first national public breast cancer screening program in Saudi Arabia." *Ann Saudi Med* 30 (2010): 350-357.
- Silva, Martins, Carla Crespo and Maria C. Canavarro. "Pathways for psychological

- adjustment in breast cancer: A longitudinal study on coping strategies and posttraumatic growth." *Psychol Health* 27 (2012): 1323-1341.
26. Ferlay, Jacques, Hai-Rim Shin, David Forman and Freddie Bray et al. "Estimates of worldwide burden of cancer in 2008." *Int J Cancer* 127 (2010): 2893-2917.
27. Astin, John, Johanna Shapiro and Deane Shapiro. "Psychological control and morbidity/mortality in breast cancer patients: A 20-year follow-up study." *Behav Med* 39 (2013): 7-10.

**How to cite this article:** Nouf Almutairi, Maryam Alharbi, Baraa M. Hammoudi and Othman Almutairi. "Depression, Anxiety and Quality of Life among Cancer Patients: A Cross-Sectional Study in Saudi Arabia." *J Cancer Sci Ther.* 12 (2020). DOI: 10.37421/jcst.2020.12.1