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Original Article

Anxiety and Depression in a Sample of Disfigured Orofacial Cancer Patients at Khartoum Teaching Dental Hospital, Sudan

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ABSTRACT:

Background: Patients treated for orofacial cancer have rarely been investigated for psychological morbidity. To address this problem, this study was conducted to estimate the relative prevalence of anxiety and depression in a sample of disfigured Sudanese patients with orofacial cancer. The main objectives of this study is to find the prevalence of anxiety and depression among facially disfigured patients and to study some of their common predictors, namely the age, gender and the education level, and to analyze their relationship. **Materials and Methods:** Descriptive Cross sectional hospital-based study. Psychometric data were collected from a series of 51 disfigured orofacial cancer patients by questionnaires at Khartoum Teaching Dental Hospital (KTDH) over five months period from Nov.2016-March2017. The Hospital Anxiety and Depression Scale (HADS) were used. Data that collected from the patients included the name, age, gender, and the patient's educational level. **Results:** 41.2% of patients exhibited symptoms of psychiatric disturbance; 21.6% were anxious, and 19.6% were depressed. Anxiety was reported in 9.7% of males and in 40% of females. Depression was reported in 6.5% of males and in 40% of females. Anxiety and depression where seen most among young patients of age group 18-29 years (28.6%). Among all patients who are anxious the illiterate category scored the highest level with 45.5% while among the depressed ones the category of elementary education scored the highest level with 50%. **Conclusion:** The finding of this study showed that anxiety and depression are common among Sudanese patients with facial disfigurement. Women who are disfigured by orofacial cancer are at greater risk for psychosocial dysfunction, therefore screening for anxiety and depression should be a part of routine clinical evaluation for all patients particularly the females who should receive a greater attention in terms of evaluation and treatment.

Key words: Anxiety, Depression, Disfigurment. Maxillofacial, Cancer

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INTRODUCTION

The face plays an important role in the formation of initial social relationships. The appearance or 'attractiveness' of a person is greatly contributed by the face. Face is the image of the person that is recalled when he is absent, and by which he is recognized [1]. Modern society places great importance on physical appearance. Facial appearance and aesthetics affect a person's self-confidence and acceptance in society [2].Face could be disfigured by either traumatic injuries, following operative procedures or by cancerous invasion [3].Facial disfigurement is defined as a visible and negative alteration in appearance caused by disruption of skin, soft tissue or bony structures[4].Orofacial cancer is a broad term describing external and internal cancers occurring in this region of the body (e.g., tongue, lips, nose, paranasal sinuses and nasal cavity, oropharanyx, nasopharynx, and salivary glands). The treatment options include surgery, radiation, and chemotherapy [1]. Depending on the site of disease, patients will undergo surgery and adjuvant therapy that removes tumor and other tissue from key, emotionally sensitive parts of the face, head, and neck, and can result in scarring and disfigurement [5].

Oral malignancy and its treatment are considered one of the major causes of facial disfigurement and it accounts for 3 to 5% of all malignant tumors in the West, rising up to 30% in certain high-prevalence countries like India. Though all cancers provoke a crisis and threat to mortality, cancers of the head and neck region are particularly devastating because they cannot be concealed or camouflaged[1]. The most common devastating treatment side effects include changes in appearance and voice; chewing , and swallowing impairment, changes in taste and smell; pain; and fatigue[6]. People who suffer facial disfigurement as a result of head and neck cancer experience a profound psychological trauma. That may cause a significant morbidity in these patients [7]. Patients with head and neck cancer experiences a "dual burden" because of the nature of the cancer and also its

subsequent treatment [8].In the interest of achieving the optimal treatment; surgeons have paid close attention to tumor site, stage, and response to treatment. But less attention has been given to the psychosocial well-being of the individual [9]. It has been estimated that the prevalence of depression is higher in head and neck cancer patients than in other cancers. The current literature implies that the prevalence of depression in head and neck cancer patients ranges from 22% to 57% [10].

The Objectives of this study is to evaluate the impact of facial disfigurement as a result of orofacial cancer and /or its treatment on the psychological wellbeing in a sample of affected adult patients, to investigate the frequency of anxiety & depression in this adult orofacial cancer patients, and to estimate some of the common predictors of anxiety & depression namely the age, gender and the education level in this cancer patients and to analyze their relationship.

MATERIALS AND METHODS

This was a descriptive Cross-sectional hospital-based study conducted at the referral clinic of KTDH at Khartoum state. The target population was the Orofacial Cancer Patients who are facially disfigured by the cancerous process itself or by tumor ablative surgery at KTDH. Total coverage sampling where adopted to conduct this study. A formal sample size calculation was not undertaken for this study; rather, the sample size was determined by the number of patients presenting during the recruitment period (Nov.2016-March.2017) who met the exclusion and inclusion criteria. To obtain a homogeneous group of patients the following inclusion and exclusion criteria are applied.

Inclusion criteria

- Any adult Sudanese patient presented with cancerous or postoperative orofacial disfigurement whether soft tissue, bony, or facial scar more than 3 cm length in any obvious areas of the face.
- The patients were informed of the cancer diagnosis.
- The cancer sites were limited to the maxillofacial region.

Exclusion criteria

- Patients who are under 18 yrs of age.
- Patients with cognitive disorder.
- Patients with known history of psychiatric disorder before being diagnosed with orofacial cancer.
- Patients who were too ill to be interviewed or to fill out the questionnaires.

  One investigator has gathered all the required data and filled the collection sheets. Data was collected by administration of the Hospital Anxiety and Depression Scale (HADS) Questionnaire as a screening tool for anxiety & depression. It is a well validated 14-item psychometric questionnaire designed to screen for psychiatric morbidity. The HADS consists of two separate subscales for anxiety and depression, with seven items on each subscale. Each item is scored from 0 to 3, resulting in a scale score that may range from 0 to 21 [11]. The patients were graded on the psychometric scale with scores of 0-7 indicating no anxiety or depression, 8-10 indicating borderline anxiety or depression and scores greater or equal to 11 indicating probable anxiety or depression [3].

RESULTS

Table (1) shows a total of 51 respondents took part in this study out of which 31 were male patients (60.8 %) and 20 were female patients (39.2 %).

Age distribution among the respondents was also examined. In general, majority of respondents were more than 60 years old (45.1%), in the age group (50-59) years it was (23.5%). This was followed closely by patients at age groups (30-39) and (40-49) years (11.8%), while the least were aged (18-29) years (7.8 %). Mean$\pm$SD of age among total participants was (55$\pm$16.577) years, (57.74$\pm$14.32) years in males and (59.75$\pm$19.18) years in females.

Table (1) also shows the educational level for the respondents. The respondents have been represented within four categories out of five. Those who are illiterate and those who have elementary, secondary, university and post graduate education. The illiterate patients represent the majority with 45% and a total of 23 respondents followed by the elementary educated with 18 respondents (35%) and the university educated with a total of 6 respondents (11.8%) and the least was those who have secondary education with a total of 4 respondents representing 7.8% of the sample.

According to the HADS cut point of anxiety and depression described earlier , probable anxiety was observed in 11(21.6%) out of total participants, while 9(17.6%) reported to be in borderline of anxiety and 31(60.8%) participants have no anxiety. The same method of HADS scoring was used to assess the degree of depression, probable depression was reported in 10(19.6%) out of total participants, while borderline depression was reported in 14(27.5%) and existence of depression was excluded from 27(52.9%) of participants, as shown in table (2).Distribution of patients with anxiety according to gender indicated that, Anxiety was reported in 9.7% of males versus 40% of females. Distribution of patients with depression according to gender indicated that, depression was reported in 6.5% of males versus 40% of females,figure (1). Distribution of patients with anxiety according to age indicated that, 3(27.3%) of patients with anxiety were in age group of (18-29) years, the same percentage recorded for the age groups (40-49) years and for age 60 years or more, while there was only one patient (9.1%) in the age group(30-39) and(40-49) years. Distribution of patients with depression according to age indicated that 3(30%) of patients were in the age (18-29) years, one patient (10%) at age (30-39) years, and two patients (20%) represent the age groups (40-49), (50-59) and 60 years or more table (3).

Distribution of patients with anxiety accoridng to their educational level and gender showed that, there were 5

illiterate patients out of whom 3 were males and 2 were females. There were 4 patients recieved elementary schooling distributed to two males and two females. There were one male patient who was secodnary school graduate and one female patient with a university education. Distribution of patients with depression accoridng to their educational level and gender showed that, there were 3 illiterate patients, two of them were males and one was female. There were 5 patients received elementary schooling distributed to three males
and two females. There were one male patient who was a secodnary school graduate and one female patient with university level education table(4).

Anxiety showed a statistically significant association with gender; probable anxiety was reported among (40%) out of female patients and it was less among males patients (9.7%), and the vice versa regarding patients with no anxiety (40% and 74.2% respectively), (P value = 0.022) Table (5). Also, Depression showed a statistically significant association with gender (P value < 0.001) Table (6); probable depression was reported among (40%) out of females patients and it was very less among male patients (6.5%), and the vice versa regarding patients with no depression (20% and 74.2% respectively).

According to the results that shown in table (7) the P value is 0.244 which is more than 0.05. Hence, this result indicates that there is insignificant difference between respondents in anxiety perceptions based on the age groups.

table (8) shows the significant value for chi-square test is 0.205 which is more than 0.05 indicating insignificant association. Hence, this result indicates that there is no difference between respondents in depression perceptions based on the age groups.

Also as seen in table (9), the P value for chi-square was (0.446) indicating insignificant association between anxiety and patient's educational level.

Results that shown in table (10) results shows that the P value for chi-square test is 0.373 which is more than 0.05 indicating insignificant association between respondents in depression and their education level.

Table (1): Demographic characteristics of orofacial cancer patients at KTDH

Demographic characteristics	Frequency	Percent
Gender		
Male	31	60.8
Female	20	39.2
Total	51	100%
Age groups		
18-29	4	7.8
30-39	6	11.8
40-49	6	11.8
50-59	12	23.5
≥ 60	23	45.1
Total	**51**	**100%**
Education Level		
Illiterate	23	45.1
Elementary	18	35.3
Secondary	4	7.8
University	6	11.8
Post graduate	0	0.0
Total	**51**	**100%**

Table (2): Anxiety and depression among disfigured orofacial cancer patients at KTDH

Anxiety & Depression	Freq	Percent
Anxiety		
No	31	60.8
Borderline	9	17.6
Probable	11	21.6
Total	**51**	**100**
Depression		
No	27	52.9
Borderline	14	27.5
Probable	10	19.6
Total	51	100

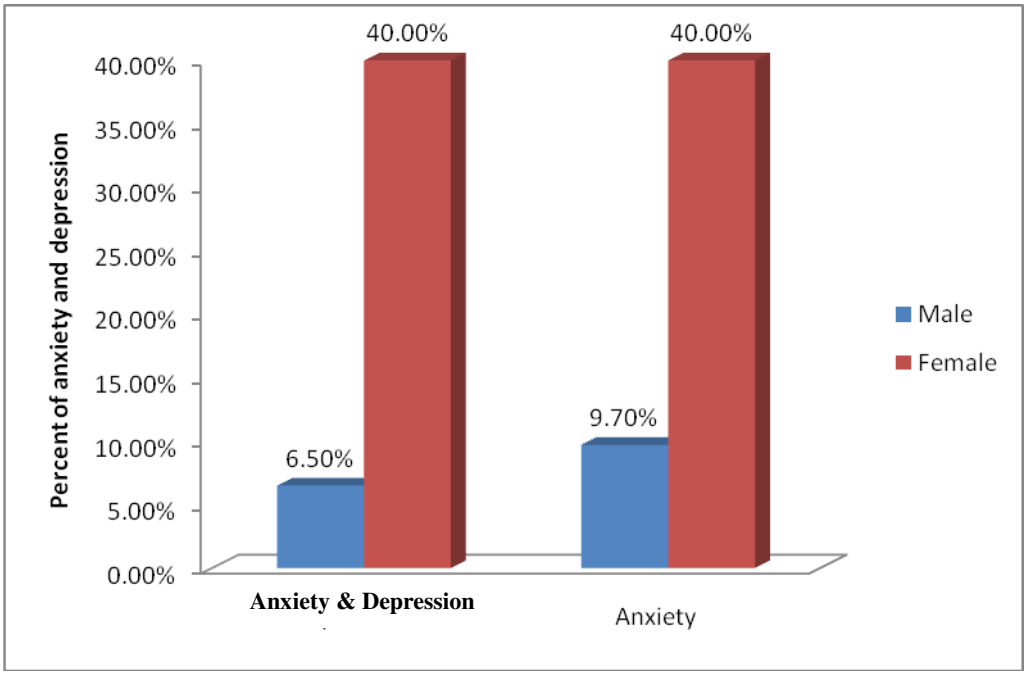

Figure (1): Distribution of anxiety and depression according to gender

Table (3): Distribution of anxiety and depression according to age groups

Age groups	Freq	Percent
with Anxiety:		
18 – 29	3	27.3
30 – 39	1	9.1
40 – 49	1	9.1
50 – 59	3	27.3
≥ 60	3	27.3
Total	11	100
with Depression:		
18 – 29	3	30.0
30 – 39	1	10.0
40 – 49	2	20.0
50 – 59	2	20.0
> 60	2	20.0
Total	10	100

Table (4): Gender and educational level distribution

Gender	Educational level			
	Illiterates	**Elementary**	**Secondary**	**University**
With Anxiety:				
Male	3	2	1	0
Female	2	2	0	1
Total	**5(45.5%)**	**4(36.5%)**	**1(9.0%)**	**1(9.0%)**
With Depression:				
Male	2	3	1	0
Female	1	2	0	1
Total	**3(30%)**	**5(50%)**	**1(10%)**	**1(10%)**

Table (5): Association between anxiety and gender

Gender	Anxiety			Total
	No A	Border Line	Probable A	
Male	23	5	3	31
	74.2%	16.1%	9.7%	100.0%
Female	8	4	8	20
	40.0%	20.0%	40.0%	100.0%
Total	31	9	11	51
	60.8%	17.6%	21.6%	100.0%

P value = 0.022

Table (6): Association between depression and gender

Gender	Depression			Total
	No D	Border Line	Probable D	
Male	23	6	2	31
	74.2%	19.4%	6.5%	100.0%
Female	4	8	8	20
	20.0%	40.0%	40.0%	100.0%
Total	27	14	10	51
	52.9%	27.5%	19.6%	100.0%

P value < 0.001

Table (7): Association between anxiety and age

Age-Group	Anxiety			Total
	No A	Border Line	Probable A	
18 – 29	1	0	3	4
	25.0%	0.0%	75.0%	100.0%
30 – 39	5	0	1	6
	83.3%	0.0%	16.7%	100.0%
40 – 49	4	1	1	6
	66.7%	16.7%	16.7%	100.0%
50 – 59	6	3	3	12
	50.0%	25.0%	25.0%	100.0%
> 60	15	5	3	23
	65.2%	21.7%	13.0%	100.0%
Total	31	9	11	51
	60.8%	17.6%	21.6%	100.0%

P value = 0.244

Table (8): Association between depression and age

Age Group	Depression			Total
	No D	Border Line	Probable D	
18 – 29	1	0	3	4
	25.0%	0.0%	75.0%	100.0%
30 – 39	3	2	1	6
	50.0%	33.3%	16.7%	100.0%
40 – 49	3	1	2	6
	50.0%	16.7%	33.3%	100.0%
50 – 59	7	3	2	12
	58.3%	25.0%	16.7%	100.0%
> 60	13	8	2	23
	56.5%	34.8%	8.7%	100.0%
Total	27	14	10	51
	52.9%	27.5%	19.6%	100.0%

P value = 0.205

Table (9): Association between anxiety and educational level

Education	Anxiety			Total
	No A	Border Line	Probable A	
Illiterate	11	7	5	23
	47.8%	30.4%	21.7%	100.0%
Elementary	12	2	4	18
	66.7%	11.1%	22.2%	100.0%
Secondary	3	0	1	4
	75.0%	0.0%	25.0%	100.0%
University	5	0	1	6
	83.3%	0.0%	16.7%	100.0%
Total	31	9	11	51
	60.8%	17.6%	21.6%	100.0%

P value = 0.446

Table (10): Association between depression and educational level

Education	Depression1			Total
	No D	Border Line	Probable D	
Illiterate	**10**	**10**	**3**	**23**
	43.5%	43.5%	13.0%	100.0%
Elementary	**10**	**3**	**5**	**18**
	55.6%	16.7%	27.8%	100.0%
Secondary	**3**	**0**	**1**	**4**
	75.0%	0.0%	25.0%	100.0%
University	**4**	**1**	**1**	**6**
	66.7%	16.7%	16.7%	100.0%
Total	**27**	**14**	**10**	**51**
	52.9%	27.5%	19.6%	100.0%

P value = 0.373

DISCUSSION

In this study 21.6% of the study population were anxious and 19.6% were depressed. This study shows clearly that facially disfigured patients are highly susceptible to develop anxiety and depression.Tefler[12] reported that 33% of his sample patients are anxious and 15% are depressed. Hassanein et al[13] founded that the anxiety and depression incidence was 25%. Humphris et al[14] founded a 37% of their sample patients were anxious and 28% were depressed. Linda L. D'Antonio et al[15] reported that 22% of the study population showed occurrence of depressive symptoms. All of the previous studies are in close agreement of this current study in relation to the prevalence of anxiety and depression in a sample of facially disfigured patients.

A significant Association between anxiety and depression and the gender was established. Women who are facially disfigured have triple to four times more the prevalence rates for anxiety and depression associated with cancer compared to men. Gutierrez-Lobos et al [16] reported close result.

Katz et al,[4] also found that women with face disfigurement are at greatest risk for psychological dysfunction, they stated that women demonstrated higher levels of depression and lower life happiness. Humphris et al[14], also concluded that women were more likely to report anxiety than men following oral cancer treatment.

Anxiety and depression where seen mostly in young patients of age group 18-29 years (28.6%). Among all patients who are anxious the age group category of (18-29),(50-59) and who are above 60 years scored the highest level with 27.3% while among the depressed patients the category of age group(18-29)scored the highest level of 30%. Nevertheless no significant statistical associations were found between anxiety and depression and the patient's age groups. Alexander de Graef et al,[17] had a similar conclusion, they stated that'age had little value in predicting the anxiety and depression'.Gutiérrez-Lobos et al,[16] has indicated that gender differences diminish with age and there is virtually no difference at age 60+.

No significant associations were found between respondents in anxiety and depression perceptions based on the patient's educational level.

Among all patients who are anxious the illiterate category scored the highest level with 45.5% while among the depressed patients the category of elementary education scored the highest level of 50%.Although these results indicate that the prevalence of depression differs based on the level of education, there is no linear pattern for this relationship.

The sociodemographic factors of age, gender, and education, have consistently been identified as important factors in explaining the variability in the prevalence of anxiety and depression. This study showed that women are much more vulnerable to develop anxiety disorder than men. Dr. Remes,[18]explained that it may be due to hormonal fluctuations, or that women are more vulnerable to stress in general. It's found that men and women suffer from depression in different ways, although they shared many of the signs and symptoms. Scientists have known differences between the two genders with respect to depression and anxiety for years. One of the biggest differences between male and female related to depression is that women are at risk for depression twice more than men, and this relates to some of the biological differences between males and females, such as hormones and genes[19].

There are some differences in perception of anxiety and depression between men and women, Women are more likely to think and meditate when feeling depressed or anxious, the retrieval of negative emotions is more common to occur in women than men, and this negative behavior involves crying for no reason, and self-blaming. Unlike women, men tend to isolate themselves when they feel depressed, helping to relieve the symptoms of depression and anxiety[16].Men who suffer from depression and anxiety are more likely to abuse alcohol and other substances, some men resort to drinking or drug use to heal themselves before the onset of depression. Men may resort to hide the symptoms of depression and grief in other ways, such as television, sports, praying and work excessively or engage in risky behaviors such as gambling and smoking[20].Previous research has found that age is one of the demographic characteristics that accounts for much of the variance in the prevalence of depression. A Canadian National Population Health Survey found that the prevalence of 12-month depression varied in men from "too low to report" for men over 65 to a high of 5.2% for the 12 to 24 age group .Women's prevalence also varied by age, ranging from a low of

3.1% for women over 65 to a high of 9.6% for the 12 to 24 age group[21]. In this study, there seems to be no difference corresponding anxiety and depression resulted from disfiguring disease and the patients' age. The reason behind having a similarity in correspondent might be the fact that all ages can share the same perceptions when it comes to the long term diseases like cancer. In another words, the pain experience, and the day to day progress of the cancer is a shared experience between all ages, which does not have specific characteristics that can be felt by an old or a younger differently. Patients almost passes through the same stages of the progress of the cancer weather it was for better or worse, therefore , it is expected that the signs and symptoms of anxiety and depression would be equally shared among this specific group of patients.

CONCLUSION

The finding of this study showed that anxiety and depression are common among Sudanese orofacial cancer patients with facial disfigurement.

Women who are disfigured by orofacial cancer are at greater risk for psychosocial dysfunction. Anxiety &depression showed a statistically significant association with female gender. The association between anxiety and depression relative to age and education level were found to be insignificant.

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