PREVALENCE AND PREDICTORS OF ANXIETY, DEPRESSION & SUICIDE AMONG CERVICAL CANCER SURVIVORS IN A TERTIARY CARE CENTER IN TAMIL NADU: A CROSS SECTIONAL STUDY

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ABSTRACT

BACKGROUND

In India, cervical carcinoma falls in the top ten leading causes of cancer-related deaths in women. The latest technological growth has ensured that there is an early detection, treatment, and management of cervical cancer which has led to longer survival rates. A five-year survival rate is 0, 1A and 1B are 80%. The longer survival has increased the psychiatric morbidity and mortality in these patients. Anxiety and depression sadly go unnoticed and untreated. This study aims to understand the prevalence of depression, anxiety and suicidal intent among women affected by cervical carcinoma treated with radiotherapy.

METHODS

A cross sectional study was done by drawing consecutive samples from the patients with cancer cervix attending out-patient department of Radiotherapy from July 2016 to July 2017. They were screened using DSM-5 criteria for depression and anxiety. Patients satisfying the selection criteria and diagnosed with depression and anxiety were given a structured Performa to collect the socio demographic details, family history details, and clinical profile and (HAM-A); (HAM-D). CSSRS scales were administered.

RESULTS

Majority was in stage three (97%, n=65) and taking radiotherapy treatment alone (76.1%, n=51). A larger part of the participants was in the age group of 51 to 65 years (52.2%, n=35). Most of the participants (79.1%, n=53) lived in nuclear families. There is a positive and significant correlation of psychiatric morbidity with staging of cancer, treatment and duration of the disease, radiotherapy and surgery. New diagnosis of cervical cancer is related to moderate/severe anxiety or depression and suicidal intent.

CONCLUSIONS

Summarising the study, there is a correlation between the psychiatric morbidity, and suicidal ideation with staging, treatment and duration of the disease. Correlation tests between suicide ideation and other variables showed positive and significant correlation with duration of diagnosis, staging of cancer, radiotherapy and surgery. Cancers that had an advanced staging at the time of diagnosis were associated with a higher risk of suicide in the first twelve months of diagnosis. New diagnosis of cervical cancer is related to moderate/severe anxiety or depression.

KEYWORDS

Cervical Carcinoma, Psychiatric Conditions, India, Depression, Anxiety and Suicide.

BACKGROUND

The uncontrolled division and proliferation of cells in the body due to various reasons coupled with the propensity to metastasize rapidly for different types of cancer makes cancer a challenging disease. The diagnosis of cancer is more frequent in the millennium, especially among women.

It is well noted that cervical cancer boasts of being the second-most common cancer in females. In 2005, a quarter million of deaths were attributed to cervical cancer while most of them (over 80%) were in developing countries like India. Torre, Lindsey A., et al. in 2012[1] reported that over half a million women were affected by cervical cancer worldwide with 90% of them in developing countries alone. One patient dies every eight minutes due to cervical cancer in India. Psychiatric morbidity due to emotional distress in these patients may obstruct the ability to manage cancer effectively, its physical symptoms and treatment leading to poor outcome in these patients. India represents one-third of the world average (IARC 2009),[2] WHO 2004.[3] This was proved by the National Cancer Registry Program in 2009. With recent advances, the resultant increase in life expectancy for people with cervical cancer has led to other

mental health conditions like anxiety and depression. Anxiety and depression may also occur with radiotherapy, chemotherapy and their side effects and also due to the cultural factors regarding the outlook of cancer in the society. In many patients, anxiety and depession sadly go unnoticed and untreated which at times may lead to suicide. People with chronic illness have increased chances of attempting suicide. If adequately managed, anxiety and depression treated early would help them lead an effective and productive life. Fewer studies are available in Indian literature in this regard.

There are biological, psychosocial and economic factors that contribute to the prevalence of depression in women. Regarding YLD (years lived with disability), depression leads the list being the fourth biggest disease contributing to the global burden. The rate of depression is higher among women with cervical carcinoma (Vigod & Stewart,[4] 2006; Paparrigopolous et al,[5] 2010). Around 20% of women are affected by depression in their lifetime and causes disability on a global scale (Kessler et al.,[6] 2003). A systematic review done by Massie in 2004 [7] showed that a wide range was observed in depression (0-38%) while a wider range was associated with other depression spectrum disorders (0-58%). For instance, the loss of appetite, weight, fatigue and mental disturbances can be both attributed to depression and cancer.[8] Secondly, the staging of the disease at the time of diagnosis is instrumental in the prevalence of depression in cervical cancer. There is a negative correlation between the stage of the disease and the psychological well-being.[9] Mantegna et al.[10] 2013 the results of the evaluation; are the demographic characteristics of this study - Married (63.8%) - Lived with someone (87.6%) Had children (80.2%) - Higher education level (84.1%) - 51.7% of women were unemployed. The following conclusions were made; - Increased anxiety levels were found at two years after surgery (around 10% of patients. Osann[11] in 2014.- 121 Non-Hispanic and 83 Hispanic women between the ages 22 and 73 completed baseline measures Around 50% of the respondents received radiation therapy (with or without chemotherapy) Patients with cervical cancer reported lower quality of life and appreciably elevated level of depression and anxiety (26% and 28% >1 SD than the mean of the general population, respectively). Another study by Lau et al in 2013 on Psychiatric morbidity in Chinese women after cervical cancer treatment in a regional gynaecology clinic showed a 37% point prevalence of psychiatric disorders (depressive disorders (31%), anxiety disorders (16%), and schizophrenia (2%)).[12] Yi-Long Yang et al in 2014 in his study of cervical cancer patients using Hospital Anxiety and Depression Scale which showed the prevalence of depression and anxiety was 52.2% and 65.6% in cervical cancer patients.[13] The anxiety score was significantly higher in patients at the period of 4-6 months after diagnose and at cancer stage II. Another study by Nasr et al in 2017 he reported; Mean age = 50.6±12.9 years, - 73.0% were married - 75.3% were residents of urban areas- 76% were unemployed - 28.5% showed anxiety - 32.5% showed depression - No relationship was found between disease

factors and demographic characteristics.[14] A study by Myung Hee Ahn in 2015 on Suicide in cancer patients within the first year of diagnosis revealed the risk factors of suicide during the first twelve months of diagnosis of cancer.[15] Suicide was found in 149 patients (40.0% of 373 suicides) in the first twelve months after the diagnosis of cancer. Any patient with chronic illness has an increased chance of depression and with the advances in the treatment for cancer – chemotherapy and radiotherapy, there is more chance of psychiatric morbidities due to the disease process and side effects of treatment. Hence it is important to quantify anxiety and depression in cancer patients for a better outcome in treatment and their quality of life.

Aims and Objectives
1. To assess the prevalence of depression, anxiety and suicidal intent and behaviour in patients with cervical cancer.
2. To access the social demography status and its correlation with mental illness in patients attending a tertiary care center.

METHODS
Design
Cross sectional study- The sample is drawn from the outpatients of Radiology department at Government Stanley Hospital, Chennai with consecutive sampling from Outpatient department satisfying the selection criteria from July 2016 to July 2017. The sample is drawn from the radio therapy OPD patients who were diagnosed with cervical cancer from stage 1 to 4. Sample size is calculated at 67. After obtaining informed consent from outpatients of Radiology department, they were interviewed and diagnosed using DSM-5 criteria for depression and anxiety. Data was recorded for this purpose. Socio demographic and medical details were obtained using a semi structured questionnaire designed for this study. Anxiety, depression are defined using ICD 10 criteria and Hamilton Anxiety Rating Scale (HAM-A), Hamilton Depression Rating Scale (HAM-D), The Columbia Suicide Severity Rating Scale (C-SSRS) were used to assess the severity of psychiatric morbidity. Persons aged between 18 to 65 and those with a diagnosis of carcinoma cervix who can give valid informed consent were included in the study. Patient with neurological impairment, space occupying lesion, previous h/o psychiatric disorder and major medical problems were excluded from the study. Statistical analysis was done using SPSS.

RESULTS
A study of 67 patients with cervical cancer undergoing treatment in tertiary care hospital on their psychiatric morbidity, sexual function and quality of life has revealed the following findings.

Demographics and Disease Characteristics of The Participants
The majority of the participants were in stage three cancer (97%, n=65) and taking radiotherapy alone (76.1%, n=51). A larger part of the participants was in the age group of 51

to 65 years (52.2%, n=35) and 38.8% were in the age group 41 to 55 years while only 9% (n=6) of the respondents were between 31 to 45 years of age. A sizeable number of the participants were Hindus (76.1%, n=51) while Muslims (11.9%, n=8) were the least represented. Most of the participants (79.1%, n=53) lived in nuclear families and 21% from joint family at the time of the study. Figure 3 illustrates the family type of the participants. A majority (55.2%, n=37) of them were illiterate and only 29.9% (n=20) had studied only up to primary school and 11% studied up to middle school. The following table shows the occupation of the participants. A majority (61.2%, n=41) of them were unemployed and 32.8% (n=22) of them were unskilled workers. A majority (64.2%, n=43) of them were earning less than 2070 INR. and 29.9% had an income of more than 2070 to 6150 INR. 91% (n=61) of them came from lower socioeconomic status. The majority of them (86.6%, n=58) were married and 10.4% of them were widowed. The majority of them (42%, n=28) reside in a municipality while only 16.4% (n=11) and 21% (n=14) came from town panchayat and corporation, village panchayat respectively. Majority of them (44.8%, n=30) had three kids and 22% had two children 19% had one child and 14% had four children. 53.7% (n=36) live with their husbands and 32.8% live with their children. Majority (55.2%, n=37) of them had been diagnosed with cervical carcinoma within the last six months. Majority (76.1%, n=51) of them were taking radiotherapy 97%, (n=65) of them were in stage 3.

Sl. No.		Number	Percentage
1	**Age (Yrs.)**		
	31-45	6	9%
	46-55	26	38.8%
	51-65	35	52.2%
2	**Religion**		
	Hindus	51	76.1%
	Muslims	8	11.9%
	Chrstians	8	11.9%
3	**Family Type**		
	Nuclear	53	79.1%
	Joint Family	14	21%
4	**Education**		
	Illiterate	37	55.2%
	Primary School	20	29.9%
	Middle School	8	11.9%
	High School	2	3.0%
5	**Occupation**		
	Unemployed	41	61.2%
	Unskilled	22	32.8%
	Semiskilled	4	6%
6	**Income in INR**		
	<=-2070	43	64.2%
	2070 to 6150	20	29.9%
	6150 to 10250	4	6%
7	**Socio-Economic Status**		
	Lower	61	91%
	Upper Lower	4	6%
	Lower Middle	2	3%
8	**Marital Status**		
	Married	58	86.6%
	Unmarried	2	3%

	Widow	7	10.4%
9	**Residence**		
	Corporation	14	21%
	Town	11	16.4%
	Municipality	28	42%
	Village	14	21%
10	**Number of Children**		
	1	13	19%
	2	15	22%
	3	30	45%
	4	9	14%
12	**Currently Living**		
	None	9	13.4%
	Husband	36	53.7%
	Children	22	32.8%
13	**Time of Diagnosis**		
	< Six months	30	44.8%
	> Six months	37	55.2%
14	**Treatment Undertaken**		
	Radiotherapy	51	76.1%
	Surgery Plus RT	16	23.9%
15	**Stage of Cancer**		
	Stage 3	65	97%
	Stage 4	2	3%

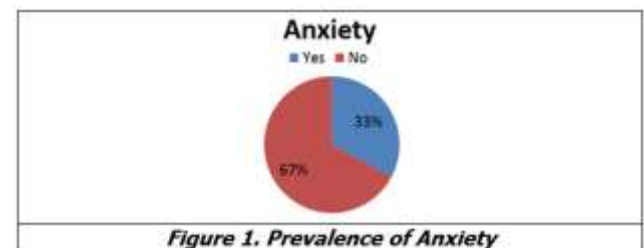***Table 1. Sociodemographic Features of The Sample Population***

Figure 1. Prevalence of Anxiety

Anxiety was present in around 33% (n=22) of the subjects.
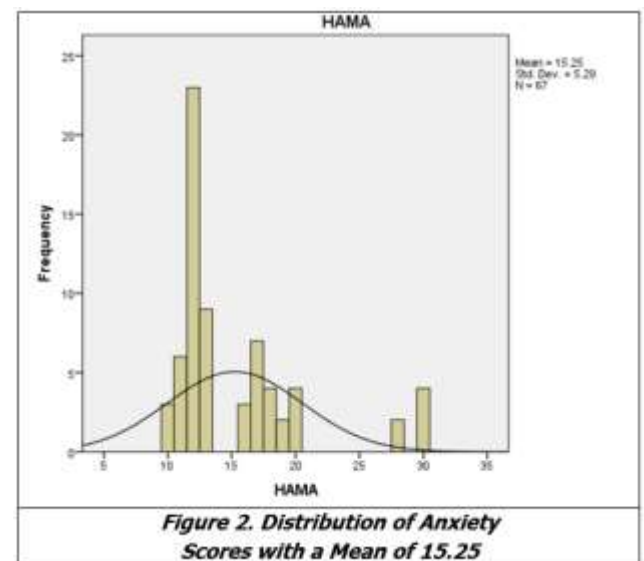

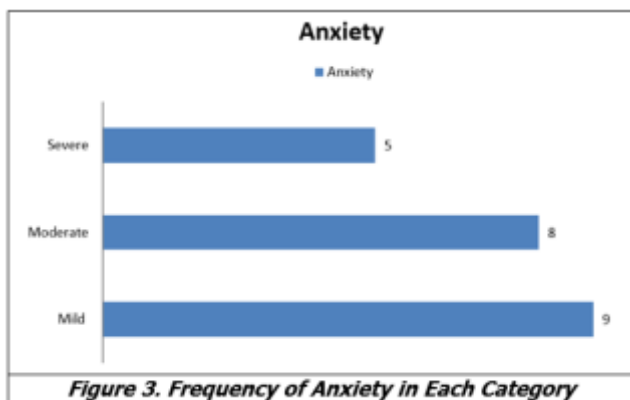*Figure 2. Distribution of Anxiety Scores with a Mean of 15.25*
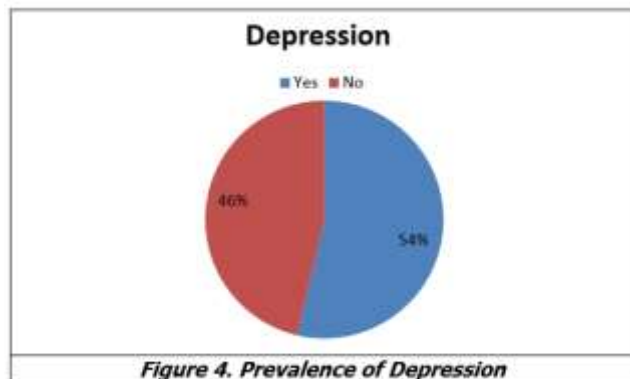
Figure 3. Frequency of Anxiety in Each Category

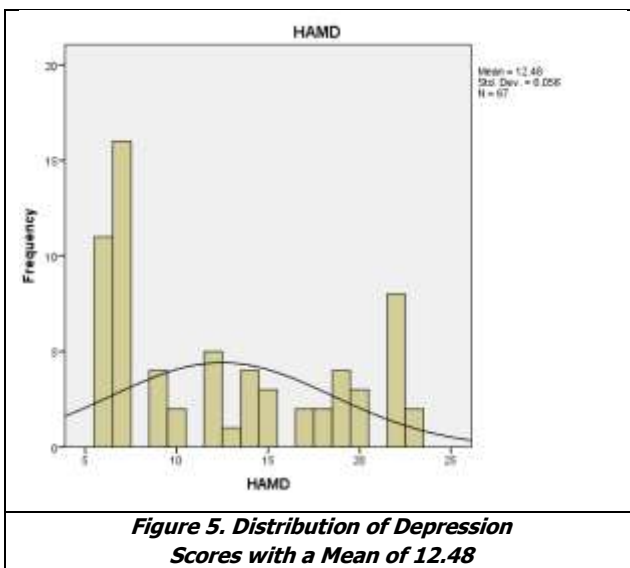

Figure 4. Prevalence of Depression

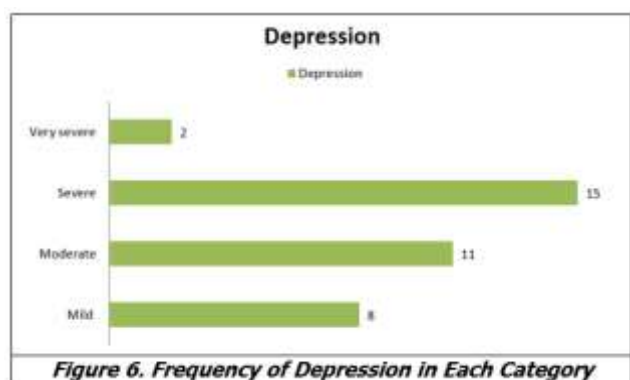*Figure 5. Distribution of Depression Scores with a Mean of 12.48*

Figure 6. Frequency of Depression in Each Category

Depression was present in around 54% (n=36) of the subjects.

Figure 6 shows the frequency of depression in each category (total no=36) mild depression n=8, moderate depression n=11, severe depression n=15, very severe n=2.

Suicide Ideation and Intention Scoring

Zero indicates no suicidal ideation in 16.4% (n=11), and 28.4% (n=19) had suicidal ideation without a plan, and 55.2% (n=37) had suicidal ideation with a plan. 17.9% of the participants had an aborted attempt or interrupted attempt.

Tables 2 to 4 depict the scores from the Columbia–Suicide Severity Rating Scale.

Suicide Ideation Score	Percentage
0	16.4 (n=11)
0-3	28.4 (n=19)
4-5	55.2 (n=37)

Table 2. Suicide Ideation Score

Zero indicates no suicidal ideation in 16.4% (n=11), and 28.4% (n=19) had suicidal ideation without a plan, and 55.2% (n=37) had suicidal ideation with a plan.

Interrupted Attempt	Percentage
No	91.0 (n=61)
Yes	**9.0 (n=6)**

Table 3. Interrupted Attempt

Table 8 shows that 9% of the participants had an interrupted attempt of suicide Aborted attempt

Table 9 shows that 17.9% of the participants had an aborted attempt.

Aborted Attempt	Percentage
No	82.1 (n=55)
Yes	17.9 (n=12)

Table 4. Aborted Attempt

The following table shows chi-square tests for different socio-demographic variables vs depression and anxiety that gave statistically significant results. (Table 10)

Sl. No.	Variables	Chi-Square Test	p-Value
1.	Age and anxiety	3.976	P<0.01
2.	Education and anxiety	8.301	P<0.01
3.	Occupation and anxiety	20.946	P<0.01
4.	Income and anxiety	16.76	P<0.01
5.	Living with and Anxiety	7.019	P<0.01
6.	Age and Depression	7.381	P<0.01
7.	Education and Depression	9.233	P<0.01
8.	Occupation and Depression	18.122	P<0.01
9.	Income and Depression	15.504	P<0.01
10.	Living with and Depression	12.011	P<0.01

Table 5. Chi Square Test Between Different Variables

DISCUSSION

A study on psychiatric co-morbidity was done on 67 patients with cervical cancer undergoing treatment in tertiary care hospital with majority of them in stage three of cancer (97%) and taking radiotherapy alone (76.1%). A larger part of the participants were in the age group of 51 to 65 years (52.2%) while only 9% of the respondents were between 31 to 45 years of age. A similar mean age = 50.6 ± 12.9 years, was reported by Nasr et al in 2017 and also by Rohan Dilip Mendonsa and Prakash Appaya in 2010 (Mean age = 45.8 years).[16] and Osann in 2014[11] who reported a maximum age of 73 years. Most of the participants (79.1%, n=53) lived in nuclear families at the time of the study. In the study, a majority (55.2%, n=37) of them were illiterate and only 29.9% (n=20) had studied only up to primary school. Most of them 91% (n=61) of them came from lower socioeconomic status with the majority (64.2%, n=43) of them earning less than 2070 INR. Majority of them (86.6%, n=58) were married in this study.

In this study, 53.7% (n=36) of them lived with their husbands and a majority of them (44.8%, n=30) had three kids. Only comparable study by Mantegna et al, 2013 showed similar demographics.(Married (63.8%), lived with someone (87.6%)).[10] In this study, Depression was present in around 54% (n=36) of the subjects and the majority of it was present in the age group of 51-65 (n=35) with very severe depression among two people in the age group of 41-55. This is similar to the study by Osann in 2014[11] where the level of depression and anxiety were 26% and 28% >1 SD. Nasr et al in 2017[14] reported that 28.5% showed anxiety and 32.5% showed depression. Yi-Long Yang et al in 2014 showed the prevalence of depression and anxiety was 52.2% and 65.6%.[13] Lau et al in 2013 reported depressive disorders (31%) and anxiety disorders (16%). Depression and anxiety (8%) by Rohan Dilip Mendonsa and Prakash Appaya in 2010.[16] The fluctuating statistics can be explained by the stigma and discrimination associated with seeking mental healthcare in some places compared to others. Further, the scales used were different which might be a reason for this difference in point prevalence.

Correlation tests between anxiety and other variables showed positive and significant correlation with duration of diagnosis (r=0.214, p<0.05), staging of cancer (r=0.787, p<0.001) and radiotherapy and surgery (r=0.523, p<0.01). Correlation tests between depression and other variables showed positive and significant correlation with duration of diagnosis (r=0.712, p<0.05), staging of cancer (r=0.276, p<0.001) and radiotherapy and surgery (r=0.233, p<0.01). The tests also strengthens the association of depression with other psychological disorders like anxiety, suicidal ideation, emphasizing that depression has to be studied to assess the quality of life among women with cervical cancer(Ayuso-Mateos et al., 2010).[17]

In this study there were 28.4% (n=19) patients that had suicidal ideation without a plan and 55.2% (n=37) patients had suicidal ideation with plan. Active suicidal ideation with specific plan and intent on suicidal ideation can be used to indicate serious suicidal ideation and can be used to trigger further evaluation and immediate contact with patient's mental health practitioner.In this study 9% (n=6) had interrupted attempt and 17.9% (n=12) had an aborted attempt of suicide. A similar finding was reported by Myung Hee Ahn in 2015 in 149 patients (40.0% of 373 suicides) of cancer patients within the first year of diagnosis.[15]

CONCLUSIONS

Summarising the study, there is a correlation between the psychiatric morbidity, and suicidal ideation with staging, treatment and duration of the disease. Correlation tests between suicide ideation and other variables showed positive and significant correlation with duration of diagnosis, staging of cancer and radiotherapy and surgery. Cancers that had an advanced staging at the time of diagnosis were associated with a higher risk of suicide in the first twelve months of diagnosis. New diagnosis of cervical cancer is associated with moderate/severe anxiety or depression.The rate of depression is higher among women with cervical carcinoma.

Limitations

Only a small number of patients (67) participated in this study. The study was done at a single point of time, which prevents episodic nature of depression and anxiety symptom evaluation. Being a cross sectional study, it has limitations in generalizing the results. This study was conducted in a tertiary care hospital where most of the patients had severe symptoms and hence the findings of this study cannot be generalized. Since this study was done in a single site, the generalizability of the results is limited.

Future Recommendations

Considering the prevalence of psychiatric morbidity in patients with cervical carcinoma, it is recommended that patients with cervical carcinoma should be screened routinely for suicidal tendencies, anxiety and depression. Appropriate treatment should be an integral part of cervical carcinoma treatment based on the pre-treatment assessment of psychiatric morbidity.

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