

Prevalence of Anxiety and Depression among Cervical Cancer Patients in Referral Hospitals in Western Kenya

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Abstract

Cervical cancer is common among women, second in prevalence and highest in cancer related mortality in Kenya. A cancer diagnosis and subsequent treatment procedure may predispose patients to anxiety and depressive disorders. This study sought to determine the prevalence of anxiety and depression among cervical cancer patients attending referral hospitals in Western Kenya. Data on prevalence of anxiety and depression was obtained using Becks Anxiety Inventory (BAI) and Beck Depression Inventory- II (BDI-II) respectively from 218 cervical cancer patients. With 95% confidence level and p -value of ≤ 0.05 , bivariate, and univariate analysis were calculated. The study found that the prevalence of anxiety among cancer patients was 80.3% with anxiety prevalence significantly higher among participants aged 40-49 years at 29.8%. Prevalence of anxiety was also found to be relatively higher among participants with primary levels of education (46.8%); among those who indicated they were married (54.1%); and those who said they had received social support from family members (44.5%). In regards to depression, the study showed that the prevalence of depression was at 67% among the participants with higher depression symptoms presented among participants aged 40-49 years (25.2%); participants with primary level education at 42.2%; and among married participants with depression symptoms at 42.7%. The distribution of depression symptoms was also higher among participants who received social support from family members at 36.2% as opposed to participants who received no social support at 21.6%. The high prevalence of anxiety and depression among patients diagnosed and undergoing treatment for cervical cancer calls for clinical mental health practitioners to consider psychological treatments for these patients.

Keywords: Prevalence, anxiety, depression, cervical cancer patients, hospital.

Introduction and Background

Global Burden of Cancer ranked cervical cancer as the fourth cancer world wide with 604,000 new cases and 342,000 deaths (Sung et al. 2021). High incidence and high death rates of cervical cancer occur in low and middle-income countries accounting for 90% of global cancer burden and 90% of cancer deaths. In Kenya, cervical cancer is ranked the second in incidence and highest cause of cancer death (Ferlay et al., 2019) with about 5,236 people (12.4%) being diagnosed with cervical cancer and 3211 (11.9%) deaths occurring yearly (Arbyn et al., 2020).

The diagnosis and medical treatment of cervical cancer is linked to development of psychological problems (Mattsson et al. 2018). This may trigger fear associated with the treatment process and perceived death (Mwaka et al. (2018) which increase levels of anxiety and distress (Dodd et al. 2020). Studies have indicated that the diagnosis of cancer and side effects of medical treatment could trigger emotional schemas which may cause anxiety and depression symptoms (Flynn et al., 2017). Researchers have argued that these psychological problems hasten the progression of cervical cancer to advanced stages and decrease quality of life (QoL) (Khalil et al., 2015). This argument has informed the need for early psychological assessment to identify the prevalence of anxiety and depression among cervical cancer patients in order to provide effective interventions (Arnaboldi et al. 2017). This will prevent them from developing such disorders which may lead to increased morbidity, poor quality of life and high mortality among cervical cancer patients.

Anxiety is common at diagnosis of cancer, when it recurs, during treatment and at progression to advanced or terminal stage (Simard and Savard, 2015). A systematic review of 36 studies among cancer patients (n=16,298) in Japan found a prevalence of anxiety at 41.9% (Hashemi et al., 2019). A study among women in Nigeria reported that phobia complicated medical treatment procedures for cancer resulting to decline in medical investigations and treatment (Abiodun & Olu-Abiodun, 2018). A study in Kenya in 2014 reported a prevalence of social phobia at 7.2% and generalized anxiety disorder at 12.3% among cancer patients (Angachi, n.d.).

Moreover, Siu et al., (2016) reported that depression is five times higher in cancer patients than the general population, while another study found that the risk of depression was one in four among cancer patients (Hartung et al., 2017). In China, Hong and Tian, (2014) conducted a study

among 1,217 cancer patients and found the prevalence of depression at 66.72 %, whereas, prevalence of depression among cervical cancer patients was higher at 71.13 %. In Germany, Klügel et al., (2017) did a literature search on 15 studies and found that patients with cervical cancer had a very high prevalence of depression between 33% and 52% which affects their physical and mental health outcomes.

Similarly, in Zambia, a study among 102 cervical cancer patients reported that 80% of the patients had depressive symptoms with 78% having moderate symptoms, mild depressive symptoms at 18% and severe depressive symptoms at 4% (Paul, Musa, & Chungu, 2016). In Kenya, prevalence of anxiety and depression among cervical cancer patients is not well explored. However, (Ndetei et al., 2009) found depression was at 42% among adults at different levels of general hospitals and out of this only 4.1% were properly diagnosed. This implies that the other patients were undiagnosed; hence untreated. Therefore, it is important to accurately assess anxiety and depression and incorporate effective psychotherapy among these patients.

Methodology

A cross sectional research design was used to determine the prevalence of anxiety and depression among cervical cancer patient at referral hospitals in Western Kenya. There were a total of 218 participants who were screened for anxiety and depression symptoms (n=147) at MTRH and (n=71) at JOOTRH. The two hospitals were purposively chosen based on availability of the target population that would aid the researcher to attain the apposite sample size. Purposive sampling was used by selecting study participants who were diagnosed with cervical cancer and those who had anxiety or depression. Inclusion into the study requisites included; having been diagnosed of cervical cancer, participant be above 18 years, signed informed consent, agreed to participate and had good performance status of Eastern Cooperative Oncology Group (ECOG) scale range of 0-2. The ECOG is used to evaluate the disease progression in a patient, and its impact on daily living activities and their functional status. The scores of ECOG are between 0 – 5. Participants with good performance status scores between 0 - 2 were recruited in the study. A score of 3 - 5 on the other hand suggests poor performance status and these participants were excluded from the study in order to minimize attrition. Anxiety symptoms were assessed using Beck's Anxiety Inventory (BAI) which consists of a 21- point scale that quantify the severity of

anxiety on a 4- point scale stretching from 0 (Not at all) to 3 (Severely) in adult (Julian, 2011). Depression symptoms were assessed using Beck’s Depression Inventory-II (BDI-II). The BDI- II assessment tool is a 21- point measure of depression severity that uses a 4-point scale with 0 (no symptoms present) to 3 (very intense). Data collected from the respondents were analyzed using the Statistical Package for Social Sciences program (SPSS version 23). Descriptive statistics of frequencies, percentages and Chi-Square tests were used to compare prevalence rates for the sociodemographic variable including age, education marital status, occupation and social support. Ethical clearance was sought from the Institutional Research and Ethics Committee of Moi University/ MTRH, the National Commission for Science Technology and Innovation and MTRH and JOOTRH management.

Results

Prevalence of Anxiety and Depression

To determine the prevalence of anxiety among cervical cancer patients, descriptive analysis of the participant’s BAI’s scores was done. The study considered participants who scored 9 or less to have normal level of anxiety whereas those who scored 10 or greater presented with anxiety symptoms based on BAI (Kohrt et al. 2003) and results presented in Table 1 below.

Table 1: Prevalence of Anxiety at Baseline

Anxiety Status	Prevalence, N (%)
Normal anxiety level (0-9)	43(19.7)
Anxiety present (10-63)	175(80.3)
Total	218(100)

As shown in Table 1, majority of the participants presented with symptoms of anxiety at 80.3% while 19.7% did not present with symptoms of anxiety. This means that the prevalence of anxiety among the participants was 80.3%.

The results for socio-demographic characteristics and prevalence of anxiety among the study participants using the chi-square statistics are presented in table 2.

Table: 2: Distribution of Socio-demographic Characteristics and Anxiety Scores

Socio Demographic Characteristics		Prevalence, N (%)		Chi-Square Test		
		Normal Anxiety (0-9)	Anxiety present(10-63)	χ^2	df	Sig.
Age	18-29	1(0.5)	2(0.9)	2.081	4	.721
Category	30-39	6(2.8)	34(15.6)			
	40-49	16(7.3)	65(29.8)			
	50-59	10(4.6)	46(21.1)			
	60+	10(4.6)	28(12.8)			
Education	No Education	3(1.4)	9(4.1)	2.556	4	.635
	Primary	27(12.4)	102(46.8)			
	Secondary	8(3.7)	46(21.1)			
	College	3(1.4)	15(6.9)			
	University	2(0.9)	3(1.4)			
Marital Status	Single	3(1.4)	10(4.6)	4.360	4	.359
	Married	23(10.6)	118(54.1)			
	Separated	2(0.9)	11(5.0)			
	Divorced	1(0.5)	3(1.4)			
	Widow	14(6.4)	33(15.1)			
Occupation	Self employed	29(13.3)	104(47.7)	1.485	2	.476
	Unemployed	9(4.1)	53(24.3)			
	Formal	5(2.3)	18(8.3)			
Social support source	None	13(6.0)	51(23.4)	3.034	3	.386
	Family	25(11.5)	97(44.5)			
	Friends	1(0.5)	17(7.8)			
	Community	4(1.8)	10(4.6)			

Table 2 presents the prevalence of anxiety in relation to the distribution of socio-demographic characteristics among the 218 participants. In terms of age, the prevalence of anxiety was more among participants aged 40-49 at 29.8%, followed by 21.1%, 15.6% and 12.8% and 0.9 % for

those aged 50-59 years, 30-39 years, above 60 years and 18-29 years respectively. Concerning levels of education, anxiety symptoms were more among participants with primary level of education (46.8%) compared to other levels of education like secondary education at 21.1%, college at 6.9% and university education at 1.4%.

Accordingly, anxiety symptoms were noted to be higher among 'married' participants at 54.1% compared to the 'widowed' participants (15.1%), 'separated' participants (5.0%) and 'singles' at 4.6%. Only 1.4% of participants who were divorced presented with symptoms of anxiety. Concerning occupation, the proportion of anxiety symptoms was found to be greater among participants who were self-employed (47.7%) as opposed to the unemployed (24.3%) while those in formal employment were 8.3%.

Further the prevalence of anxiety was higher among participants who received social support from family members at 44.5% as compared to participants who received social support from 'no' one (23.4%), from 'friends' (7.8%) and from 'community' members (4.6%). Overall, Chi-square analysis implied that there was no statistically significant difference in the distribution of participant's anxiety scores based on age ($p = 0.721$), education ($p = .635$), marital status ($p = 0.359$), occupation ($p = 0.476$) and various support groupings ($p = 0.386$). These results revealed that all (p 's > 0.005). Therefore, it suggests one could still present with symptoms of anxiety regardless of the age education, marital status, occupation and social support source

To determine the prevalence of depression among the cervical cancer patient's descriptive analysis of the participant's BDI's scores was done. The study considered participant who scored 0 and 13 to have normal ups and downs (minimal symptoms of depression), while participants who had a score between 14 and 63 presented with depressive symptoms based on BDI-II (Ndetei et al. 2010) and findings presented in Table 3.

Table 3: Prevalence of Depression among Study Participants

Status of Depression	Prevalence, N(%)
Normal ups and downs (0-13)	72 (33.0)
Depression (14-63)	146 (67.0)
Total	218(100)

Table 3 presents the prevalence of depression among the participants. As shown on the Table 3, the number of participants with depression was higher at 146 (67.0%) as opposed to those without symptoms of depression (33%). Therefore, the prevalence of depression among the participants was at 67% showing that more than half of the participants presented with symptoms of depression. This means that depression is prevalent among the cervical cancer patients.

Table 4 presents results for socio-demographic characteristics and prevalence of depression among the study participants using the chi-square statistics.

Table 4: Distribution of Socio-Demographic Characteristics and Depression Scores

Social demographic Characteristics		Prevalence, N (%)		Chi Square Test		
		No depression	Depression present	χ^2	df	Sig
Age	18-29	2 (0.9)	1(0.5)	7.12	4	.130
	30-39	8(3.7)	32(14.7)			
	40-49	26(11.9)	55(25.2)			
	50-59	24(11.0)	32(14.7)			
	60 +	12(5.5)	26(11.9)			
Education	None	4(1.8)	8(3.7)	5.20	4	.267
	Primary	37(11.0)	92(42.2)			
	Secondary	19(8.7)	35(16.1)			
	College	9(4.1)	9(4.1)			
	University	3(1.4)	2(0.9)			
Marital status	Single	5(2.3)	8(3.7)	2.82	4	.589
	Married	48(22.0)	93(42.7)			
	Separated	3(1.4)	10(4.6)			
	Divorced	0(0.0)	4(1.8)			
	Widow	16(7.3)	31(14.2)			
Occupation	Self-employed	38(17.4)	95(43.6)	5.18	2	.075
	Unemployed	22(10.1)	40(18.3)			
	Formal	12(5.5)	11(5.0)			
Social support source	None	17(7.8)	47(21.6)	3.53	3	.317
	Family	43(19.7)	79(36.2)			
	Friends	5(2.3)	13(6.0)			
	Community	7(3.2)	7(3.2)			

Table 4, presents the distribution of socio-demographic characteristics and depression scores among the 218 cervical cancer patients at baseline. In terms of age, 25.2% of those aged 40-49 years had symptoms of depression which was higher compared to 14.7% of the participants aged 50-59 years, 14.7% of those age 30-39 years, (11.9%) of those aged 60 years and above and the least were those aged 18-29 years at 0.5%.

Table 4 shows the proportion of depression symptoms was more among participants with primary level education at 42.2% compared to other levels of education including secondary education at 16.1%, college education at 4.1% and no formal education at 3.7%. Only 0.9% of the study participants who had university education presented with symptoms of depression.

Concerning marital status, those in the ‘married’ category with depression symptoms were 42.7% which was more compared to those who were ‘widowed’ (14.2%), the ‘separated’ (4.6%) and the ‘singles’ (3.7%). Only 1.8% of those who were ‘divorced’ presented with symptoms of depression. As for the employment status, the proportion of depression symptoms was greater among participants who were self-employed (43.6%) as opposed to the unemployed (18.3%) while those formally employed participants were 5.0%. The difference in the distribution of symptoms of depression was not statistically significant ($p = 0.075$) indicating that there was no statistically significant difference in terms of depression symptoms based on employment status.

Table 4 additionally shows that more of the participants who received social support from family members had depression symptoms at 36.2% compared to participants who received social support from ‘no one’ at 21.6%, from friends at 6.0% and from community members in general at 3.2%. Chi-square analysis implied that there were no statistically significant differences in the distribution of participant’s depression scores based on age ($p = 0.130$), education ($p = 0.267$), marital status ($p = 0.589$), occupation ($p = 0.075$) and various support groupings ($p = 0.317$). These results showed that all (p ’s > 0.005) therefore, it suggests one could still present with symptoms of depression regardless of the age education, marital status, occupation and social support source.

Discussion

The results of this study found the prevalence of anxiety was 80.3% among the participants presenting with cervical cancer. The findings also concur with a study in Ethiopia on cross sectional assessment of burden of emotional symptoms among patients ($n=385$) with advanced cervical cancer (stage IIB-IVB), which reported that the prevalence of anxiety was at 79.7% (Kebebew, Mavhandu-Mudzusi, & Mosalo, 2021). The study further reported that most of the participants were illiterate (63.1%) while the married participants were more (62.3%). Thus, the

study showed that patients who presented with advanced stage cervical cancer bore a higher anxiety symptom burden. This concurs with the results of this study that found participants with primary level of education at 46.8% while the 'married' participants were more at 54.1%.

Lower prevalence of anxiety was reported in a systematic review of 36 studies among cancer patients (n=16,298) in Japan that found a prevalence of anxiety at 41.9% (Hashemi et al., 2019). Other findings of a study carried out in Kenya reported a slightly lower prevalence of anxiety was at 79% among cervical and breast cancer patients (Bosire et al., 2020).

The results of this study found the prevalence of depression was 67% among the participants presenting with cervical cancer. Higher prevalence rates of depression have been reported in other studies across the globe. In one study in China, the prevalence of depression among cervical cancer patients was at 71.13% which was slightly higher than the findings of this study (Hong & Tian 2014).

Lower prevalence rates of depression have however been reported in other parts of the world. In Northern Thailand a cross-sectional study among 200 cervical cancer patients found a prevalence of depression at 13.5% while using the PHQ-9 questionnaire (Karawekpanyawong et al., 2021). The variation in prevalence of depression among cervical cancer patients may be due to the different study instruments used for assessments of depression. Shyu et al. (2019) nationwide population based study in Taiwan among newly diagnosed cervical cancer patients (n=19,316) found a prevalence of depressive disorder at 4.21% in cervical cancer group compared to 3.9% in the healthy control group. Another cross-sectional study among cervical cancer patients at a public oncology hospital in Mexico (n= 165) found 41.2% of the participants had depression (Doubova & Pérez-Cuevas, 2021).

Higher prevalence rates of depression have been reported in other studies. For example, a study in Zambia among 102 cervical cancer patients found that 80% of the patients presented with depressive symptoms (Paul, Gerald, & Chungu 2016). In Ethiopia, Kinfu (2019) in a study done at Tikur Anbessa Specialized Hospitals among cervical cancer patients (n=163) found the prevalence of depression was at 71.8%. Hence the prevalence rates in this study were slightly lower than the prevalence rates reported in these studies.

In Kenya, the prevalence of depression among patients with breast cancer (n= 79) at MTRH was at 59.4% (C et al., 2021). The study used Hamilton Depression Rating Scale (HAM-D) to collect data and measure severity of depression and reported that being employed, the chemotherapy treatment and advanced stage of cancer were significantly associated with having depression. This study found that most of the participants had advanced stage cervical cancer from stage II B and above accounting for 70.7%. This also agrees with, Mungo et al. (2022) in Kenya who found that 78.7% of cervical cancer patients at JOORTH presented at advanced stage disease which may predisposed them to having depression symptoms. In Tanzania, a study found a slightly lower rate of advanced cervical cancer stage IIB - IVB at 63.9 % (Mlange et al., 2016).

The outcomes of this study are also almost similar to results from a multi-center research conducted in China among cervical cancer patients (n=224) at two cancer hospitals that showed anxiety at 65.6% and depression at 52.2% (Yang et al. 2014). Higher scores were found at 4 – 6 months after diagnosis of patient at stage II cancer in the study. Hence, the need to assess for emotional trauma among cervical cancer patients. Also in China, Yang et al. (2013) did a systematic reviews of 17 studies on 3497 women, where he compared prevalence of depression and anxiety in adults with cancer and those without cancer and found anxiety was at 49.69% against 18.37% while depression was at 54.9% against 17.5%. This supports the fact that anxiety and depression are more prevalent among cancer patients than in the general population.

Anxiety and depression may persist long after medical treatment of cancer. This is supported by a study in Korea that was done among 832 cervical cancer survivors from six large hospitals (Kim et al. 2009). The study found the prevalence of anxiety at 34.3% while 39.7% had depression. However, the findings are lower than those in this study since these other studies used Hospital Anxiety and Depression Scale (HADS) for the assessments as opposed to this study that used BAI and BDI-II.

In contrast to this study, Kim et al. (2010) conducted a comparative study in Korea among 828 cervical cancer survivors and 500 healthy controls. The study found almost similar scores of anxiety among cervical cancer survivors at 39.5% and healthy control at 32.2%, Chi square statistic did show no significant different in anxiety scores of cervical cancer survivors and healthy controls (P = 0.218). The study further reported a lower score of depression among

cervical cancer survivors (34.6%) compared to healthy controls (48.0%), which was significantly different ($P < 0.001$). This means that depression was higher in the current study than the one found in Korea among cervical cancer survivors and the healthy controls. Therefore, it is expected that cervical cancer patients undergoing treatment are likely to present with a higher percentage of symptoms of depression.

This study focused only on adult females presenting with cervical cancer. It would be beneficial to do a similar study among adult males who present with cancer to compare the prevalence of anxiety and depression in relation to gender. The study was conducted among cervical cancer patients hence a study among female with other types of gynecological cancers like cancer of the ovaries, uterus, vulva among others will help gauge the comparison of anxiety and depression prevalence of among females with gynecological cancer.

This study has confirmed that cervical cancer patients present with high prevalence of anxiety and depression and recommend that policy makers need to implement effective interventions. This can be achieved by facilitating training of counsellors in the oncology clinics in order to incorporating psychotherapy in the management of cervical cancer patients at the oncology clinics in a multidisciplinary approach. The health care providers such as doctors and nurses need to be trained on assessment of anxiety and depression in order to detect patients who need to be referred to the psychologists for psychological management and psychiatric for drug therapy. Since anxiety and depression have been found to be prevalent among cervical cancer patients the patients will benefit from assessment and appropriate intervention. Therefore, the Ministry of Health and County government in Kenya needs to employ clinical psychologists and counselling psychologists who are able do good psychological assessment to identify anxiety and depression among cancer patients. These professionals could make appropriate treatment planning for management of such patients thereby reducing the morbidity and mortality rate of patients and increasing the quality of life of the patients.

Conclusion

This study provided evidence about the high prevalence of anxiety (80.3%) and depression (67%) were observed among cervical cancer patient in referral hospitals in Western Kenya. As supported by other studies, the prevalence of these mental health disorders was higher among

participants aged between 40 and 49 years in comparison to other age groups. Therefore, as a result of these findings, health care providers should focus on assessment of anxiety and depression among these patients in order to diagnose and plan for treatment. It is also recommended that mental health practitioners provide effective psychotherapy that will reduce the symptoms of anxiety and depression in this population.

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