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Original Article

Prevalence, Pattern, and Correlates of Psychiatric Morbidity among Patients living with Cancer in Nigerian Hospitals

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Abstract

Background: Cancer is a growing public health concern in Nigeria and other developing countries, with many patients presenting late and experiencing psychiatric comorbidities. The aim of this study was to determine the prevalence of psychiatric morbidity among cancer patients.

Methodology: This cross-sectional study involved 230 cancer outpatients at the National Hospital Abuja, using a socio-demographic questionnaire, the General Health Questionnaire-12 (GHQ-12) for screening, and the Mini International Neuropsychiatric Interview (MINI) 6.0 for psychiatric diagnosis.

Results: This study found psychiatric morbidity in 49 (21.4%) respondents. Major Depressive Disorder was found in 39 (17.0%) respondents. Prevalence of other psychiatric morbidity in total respondents was suicidal 13 (6.0%), Generalized Anxiety Disorder 9 (3.9%), Alcohol abuse 2 (0.9%), Psychotic disorder 2 (0.9%), Mania 1 (0.4%), and Hypo-mania 1 (0.4%). The presence of psychiatric morbidity had a statistically significant association with years of awareness of diagnosis ($\chi2=8.98$, $p=0.03$), past history of mental illness ($\chi2=17.82$, $p=0.001$), disclosure of diagnosis ($\chi2=11.43$, $p=0.01$, prognosis ($\chi2=7.49$, $p=0.01$), and treatment options ($\chi2=13.18$, $p=0.001$).

Conclusion: About one in five cancer patients in this study was fou nd to have psychiatric morbidity similar to other Nigerian findings. The presence of psychiatric morbidity has a statistically significant association with years aware of diagnosis, past history of mental illness, and disclosure of diagnosis, prognosis, and treatment options.

Keywords: Cancer, Psychiatric morbidity, Anxiety Disorder, psycho-oncology, Nigeria.

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Quick Response Code:

Introduction

Cancer has attained greater public health significance in Nigeria and other developing countries in recent years, with trends projected to increase due to demographic and epidemiological transitions.[1,2] Increases in cancer cases are also affected by the rising prevalence of smoking, physical inactivity, dietary, and lifestyle changes.[3] Additionally, HIV-related cancers such as non-Hodgkin's lymphoma, cervical carcinoma, and Kaposi's sarcoma may account for a significant rise in cancer rates in Africa over the next 50 years.[4] About 56% of the world's new cancer cases occur in developing countries.[1] The majority of cancer patients in sub-Saharan Africa present with advanced, incurable disease, contributing to an estimated 500,000 cancer deaths annually.[5]

Cancer treatment is often accompanied by several psychological difficulties. Many patients struggle with anxiety, low mood, stress, and worries about the illness returning. They may also find it challenging to cope with changes in their body, daily routines, and the financial demands of treatment. These emotional and psychological strains can interfere with their overall well-being and ability to follow through with treatment, making psychological support an essential part of holistic cancer care.

The disease burden and time course of disseminated malignancy are relatively predictable, so care planning should incorporate patient preferences.[6] However, patients' coping abilities with diagnosis, progression, and treatment vary and are affected by psychological and physiological factors.

Patients often face predictable death and must cope with the physical and psychological burdens associated with end-of-life care.[6] Some cultural settings in Nigeria discourage open communication about death, complicating psychosocial and palliative care delivery

Unfortunately, psychological distress often goes unrecognized, and referrals to psychiatric or psychosocial services remain low. In Nigeria, data on psychiatric comorbidities among cancer patients remain sparse, with most studies focusing only on specific disorders like depression and primarily in southern regions. Early recognition and intervention could reduce adverse outcomes such as frequent hospital visits, increased healthcare costs, poor treatment compliance, reduced quality of life, and even suicidal ideation.

Aim of the study

The aim of this study was to determine the prevalence of psychiatric morbidity among cancer patients attending the Radiotherapy and Oncology outpatient clinic of the National Hospital, Abuja.

Specific objectives

To determine the prevalence of psychiatric morbidity among cancer patients

To determine the association between socio-demographic variables and psychiatric morbidity

To determine the association between clinical variables and psychiatric morbidity

Methodology

The study was carried out at the Department of Radiotherapy and Oncology of the National Hospital, Abuja. Abuja is the Federal Capital Territory (FCT) of Nigeria, with a population of 1,406,239 persons according to a 2012 estimate[1]. It is centrally located and is home to persons of varied ethnic and religious backgrounds. It plays host to the executive and legislative arms of the federal government, major multinational companies, foreign embassies, and young people seeking job opportunities and career advancement[1].

The Radiotherapy and Oncology department of the National Hospital, Abuja, caters to the needs of cancer patients from the FCT and surrounding states. Referrals also come from distant states due to the availability of specialized equipment like the Linear Accelerator, Brachytherapy, and the Magnetic Resonance Imaging (MRI) machines. The department runs thrice-weekly outpatient clinics from 8am to 5pm, while the

chemotherapy clinic also runs thrice weekly from 8am to 5pm. The brachytherapy procedure for patients with cervical cancer runs twice weekly.

Patients who have been diagnosed with cancer (confirmed from histological diagnosis in the case note) and are receiving treatment at the oncology unit of the National Hospital, Abuja, who met the inclusion criteria (see below) were recruited into the study after due written or verbal consent was obtained. Patients were informed that they could withdraw their participation at any point in the study.

Study design:
This was a descriptive cross-sectional study.

Inclusion Criteria:

- Patients must be aged 18 years and above
- The patient must have been diagnosed as having a malignancy
- Patients must be capable of filling out a questionnaire or communicating with an interviewer, with or without an interpreter.
- Patients must be competent enough to understand the intent of the study and provide informed consent.
- Patients must be physically fit enough to participate in the study

Exclusion Criteria:
Patients on life support and others who are too physically ill to fill out a questionnaire or communicate with an interviewer.

Sample selection:
Consecutive patients who fulfilled the inclusion criteria and gave informed consent were selected to participate in the study until the required sample size was obtained.

Sample size determination
Sample size was determined using the formula (modified Cochran) nf=n/1+(n/N) for studying proportions in a population less than 10,000.[7,8] The first step was to calculate nn using the formula (Cochran) $n=z^2pq/d^2$, which is the formula for calculating sample size for proportions in a population greater than 10,000.[7]
. Where:

n is the sample size

z is the critical value at 95% confidence interval (1.96)

p is prevalence from previous study (44.4% <p> 0.44[11])

q is 1-p, which is 0.56

d is precision, accuracy, or error margin, which is set at 5% (0.05)

$n= (1.96)^2 *(0.44*0.56)/ (0.05)^2$

n= 3.8416*0.2464/0.0025

n= 0.94657024/0.0025

n=378.63

nf=n/1+n/N), where

nf is the desired sample size for a population<10,000

n is the sample size in the descriptive study as derived above

N is the total number of patients seen in the oncology department annually (approximately 450).

nf=(378.63/(1+ [378.63/450])

nf= 378.63/(1+0.8414)

nf=378.63/1.8414

nf=205.62

10% non-response = 20.56

205.62+20.56=226.18

The sample size was set at 230.

Instruments for data collection:

The General Health Questionnaire (GHQ)

The General Health Questionnaire (GHQ), introduced by Goldberg (1978), is one of the most widely used screening instruments for detecting individuals at risk of developing psychiatric disorders in both medical and community settings.[9,10] It screens for mental health problems such as depression, anxiety, somatic symptoms, and social withdrawal.[11] The original GHQ was a 60-item questionnaire, from which shorter versions such as the GHQ-12, GHQ-20, GHQ-28, and GHQ-30 were derived.[11] In settings with widespread illiteracy, the GHQ-12, being the shortest version, is more suitable because it can be administered verbally.[12] It is also ideal for medically ill patients as it excludes physical symptoms that may overlap with illness presentations.[13] The GHQ-12 has been validated in Nigeria against the Composite International Diagnostic Interview (CIDI), showing a sensitivity of 68% and specificity of 70%, with a cutoff score of 3 or above indicating clinically significant psychopathology.[12] In this study, the GHQ-12 was used with the binary scoring method (0-0-1-1) and a threshold of 3 for caseness.

The Mini-International Neuropsychiatric Interview (M.I.N.I.)

The M.I.N.I. is a short, structured diagnostic interview designed for DSM-IV and ICD-10 psychiatric disorders, developed jointly by psychiatrists and clinicians in the U.S. and Europe.[14] It takes about 15 minutes to administer and has been widely used in Nigeria for research and clinical purposes.[15] In this study, the M.I.N.I. version 6.0.0 was administered only to participants who screened positive on the GHQ-12 to confirm psychiatric diagnoses.[14,15]

Socio-demographic and clinical questionnaire:

This questionnaire was designed by the researcher and used to extract socio-demographic and clinical variables, including age, sex, educational status, marital status, diagnosis, awareness of stage, time since diagnosis, history of cancer-related deaths in the family, treatment modality, and so on. Clinicians and patient case notes were consulted where there was any doubt.

Statistical analysis

Statistical analysis was done using the computer software Statistical Package for Social Sciences (SPSS) version 20. Continuous variables are presented as a mean and standard deviation, while categorical variables are presented as a proportion. Frequency tables were generated, and proportions (categorical variables) were compared using the chi-square, while strength and direction of association were determined using regression statistics where necessary. A p-value <0.05 was taken as statistically significant.

Ethical Considerations

Ethical clearance was obtained from the ethics approval committee of the National Hospital, Abuja, with reference number NHA/EC/048/2015. The study was non-invasive. Informed consent was obtained from participants after a due explanation of the aims and procedure. Participants were informed that they could withdraw from the study at any point with no penalty. Information provided by participants was treated with the strictest confidentiality. The instruments and data extraction sheet did not bear the names of the participants. Hospital numbers were used as identifiers.

The subject of this research is a sensitive and potentially distressing one and could elicit strong emotional responses of fear, distress, and anxiety. Participants were pre-informed of the sensitive nature of some of the questions. They reserved the right to refuse to answer any question they were uncomfortable with. In cases where clear psychiatric morbidity was established, the managing team was informed (with the patient's consent) so that the patient could be referred to the Department of Psychiatry in the hospital. If they wished, participants were allowed to have someone of their choice sit through the interview with them to offer some support/comfort.

Procedure

The data collection process was conducted in the oncology clinic, commencing each day at approximately 8:00 a.m. Upon arrival, the researcher liaised with the nursing and records staff to facilitate smooth coordination of activities. A designated room was secured and prepared to provide a comfortable and private environment for conducting interviews. The matron in charge of the oncology clinic formally introduced the researcher to the clinic attendees and obtained their permission to allow a general address. Following this, the researcher introduced himself and the purpose of the study to the attendees, highlighting the importance of research to medical practice while stressing that participation was entirely voluntary. A general and informal consent was sought at this stage to ensure openness and transparency. Eligible participants were then selected consecutively based on the order in which case notes were arranged, in line with the study's inclusion criteria. Each participant was invited individually into the interview room, where the objectives, procedures, risks, and benefits of the study were explained in detail. Written informed consent was subsequently obtained, and only those who signed the consent form were enrolled in the study. On average, three to four participants were interviewed daily. For participants with evidence of psychiatric morbidity, permission was sought to inform their attending physician to enable referral to a psychiatrist. Those who consented were assisted in facilitating their review by the psychiatric team. This ensured that ethical obligations of beneficence and participant welfare were adequately upheld. Data was collected from 27th March 2017 to 1st November 2017.

Results

General characteristics of respondents

Socio-Demographic Characteristics of Participants

A total of 230 participants were interviewed. The majority were females, 152 (66.1%), while78 (33.9%) were males. Participants' ages ranged from 18 to 80 years, with a mean age of 51 years (SD = 12.0). When grouped, younger adults (18–44 years) accounted for 30.4% of the sample, middle-aged participants (45–59 years) constituted 44.4%, and elderly participants (≥60 years) represented 25.2%. Most respondents were married (77.8%), while 14.8% were single, 0.4% divorced, and 7.0% widowed. Educational attainment ranged from 5 to 22 years, with a mean of 15 years (SD = 3.4). The majority (67.0%) had between 13 and 18 years of formal education. With respect to employment status, 65.7% were currently employed, 25.7% were retired, 7.4% were unemployed, and 1.3% were retired but remained engaged in gainful work.

Table I Socio-Demographic and Clinical Characteristics

Variable	**N= 230**
Age group (years)	**n (%)**
18-44	70 (30.4)
45-59	102 (44.4)
60 and above	58 (25.2)
Mean (SD)	**51 (±12.0)**
Age range (in years)	**18 – 80**
Sex	
Male	78 (33.9)
Female	152 (66.1)
Marital status	
Single	34 (14.8)
Married	179 (77.8)
Divorced	1 (0.4)
Widowed	16 (7.0)
Years of education	
1-6	13 (5.7)
7-12	38 (16.5)
13-18	154 (67.0)
19+	25 (10.8)
Mean (SD)	**15 (±3.4)**
Range	**5-22**
Employment status	
Currently employed	151 (65.7)
Currently unemployed	17 (7.4)
Retired	59 (25.7)
Retired but working	3 (1.3)
Was your diagnosis explained to you?	
No	57 (24.8)
Yes	173 (75.2)

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If no, would you prefer the raw details of your diagnosis to have been disclosed to you?	
No	1 (1.8)
Yes	56 (98.2)
Was the prognosis (possible outcome) explained to you?	
No	63 (27.4)
Yes	167 (72.6)
If no, would you have preferred the likely outcome of your illness disclosed to you?	
No	0 (0.0)
Yes	63 (100.0)
Table I (continued) Sociodemographic and clinical characteristics **Were the treatment options explained to you?**	
No	44 (19.1)
Yes	186 (80.9)
If no, would you prefer the treatment options disclosed to you?	
No	0 (0.0)
Yes	44 (100.0)

Types of Cancers:
Overall, breast cancer was found to be the commonest cancer, representing 45.7% of total participants, followed by urogenital cancers (15.7%), and head & neck cancers (12.6%).

Table II Types of Cancers (N=230)

Type of Cancer	n	% Prevalence	95% Confidence Interval
Breast	105	45.7%	39.2% – 52.2%
Urogenital cancers	36	15.7%	11.0% – 20.4%
Head and neck cancers	29	12.6%	8.3% – 16.9%
Gynaecological cancers	22	9.6%	5.7% – 13.5%
GIT	15	6.5%	3.4% – 9.6%
Skin and appendages	9	3.9%	1.3% – 6.5%
Lung cancer	4	1.7%	0.0% – 3.4%

Bone and sarcomas	4	1.7%	0.0% – 3.4%
CNS cancers	3	1.3%	0.0% – 2.8%
Hematological cancers	3	1.3%	0.0% – 2.8%

Sex Distribution and Cancer Diagnosis:

Females accounted for about two-thirds of the participants (66.1%), while 33.9% of participants were males. The commonest group of malignancies in males was urogenital, occurring in 43.6% of males, while breast cancer was the commonest in females, accounting for 68.4% of cases (Figure 1).

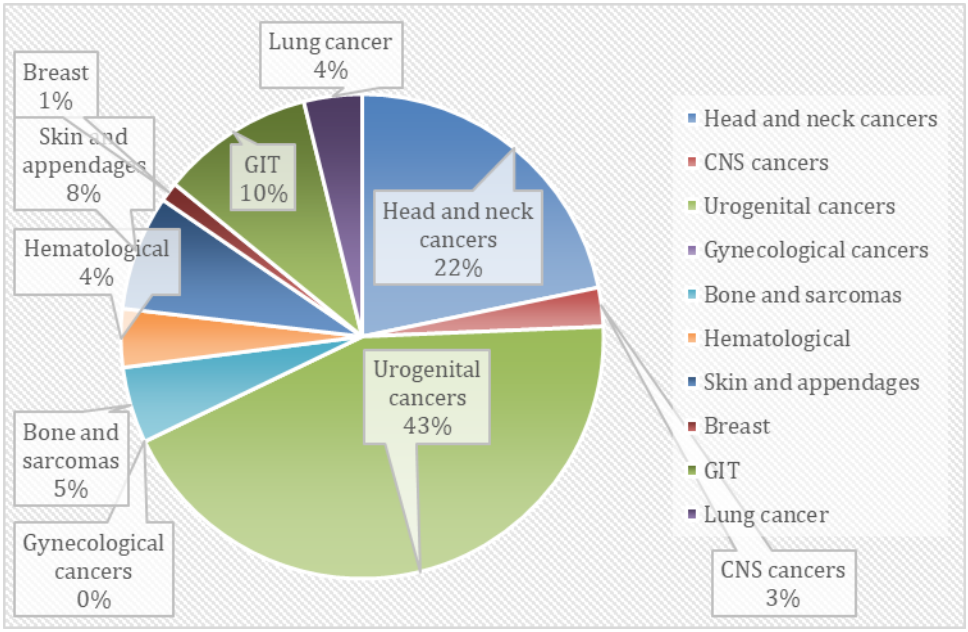

Figure 1 Cancer diagnoses among male patients

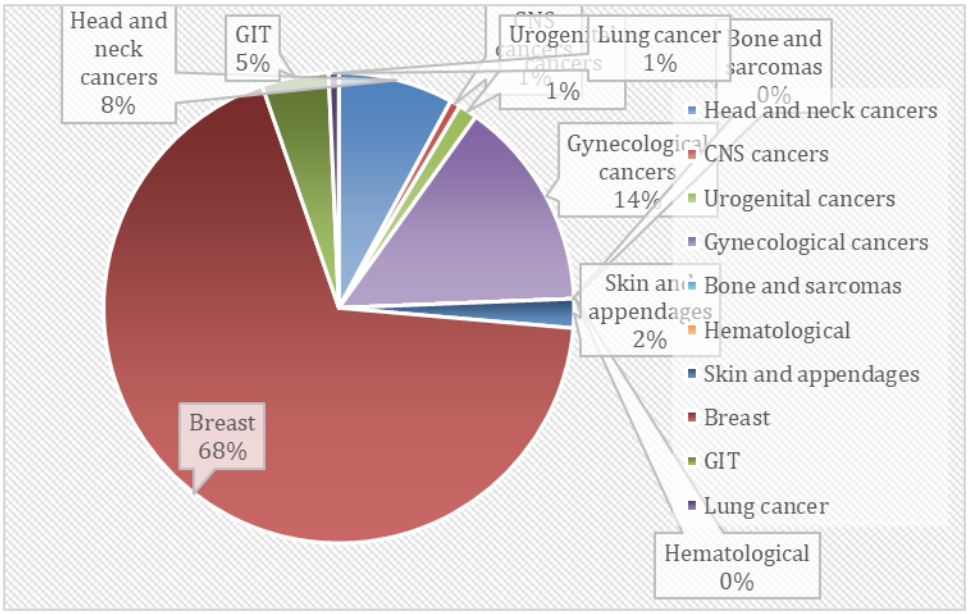

Figure 2 Cancer diagnoses among female patients

Table III Sex Distribution of Cancer Diagnosis

Variable	Male n=78 (%)	Female n=152 (%)	Total n (%)
Cancer distribution			
Breast	1 (1.3)	104 (68.4)	105 (45.7)
Urogenital cancers	34 (43.6)	2 (1.3)	36 (15.7)
Head and neck cancers	17 (21.8)	12 (7.9)	29 (12.6)
Gynecological cancers	0 (0.0)	22 (14.5)	22 (9.6)
GIT	8 (10.3)	7 (4.6)	15 (6.5)
Skin and appendages	6 (7.7)	3 (2.0)	9 (3.9)
Lung cancer	3 (3.9)	1 (0.7)	4 (1.7)
Bone and sarcomas	4 (5.1)	0 (0.0)	4 (1.7)
CNS cancers	2 (2.6)	1 (0.7)	3 (1.3)
Hematological	3 (3.9)	0 (0.0)	3(1.3)

Caseness

The prevalence of caseness among all the participants, female participant and male participants were 28.26%, 26.3% 21.8% respectively, indicating clinically significant psychopathology; they had the diagnostic instrument (M.I.N.I 6.0) administered.

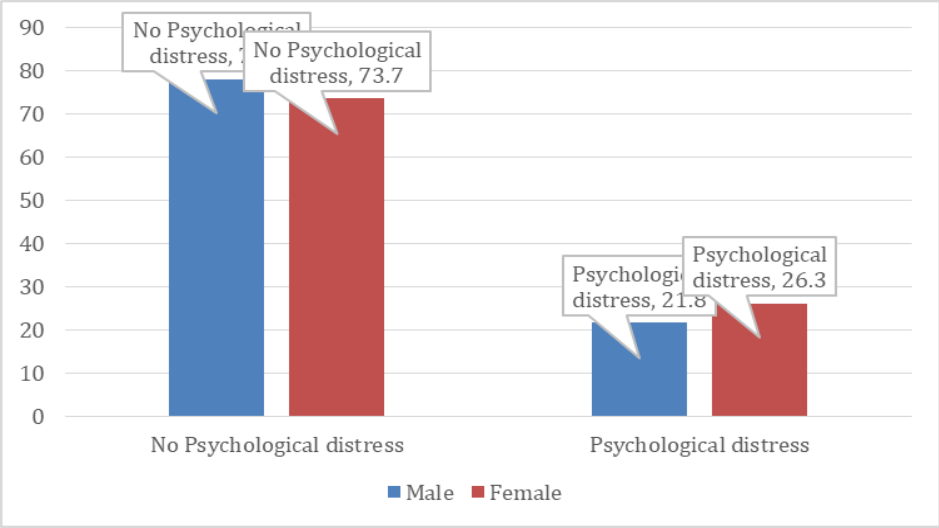

Figure 3 Sex distribution of caseness

Psychiatric Morbidity among the respondents

Forty-nine participants (21.37%) met the criteria for at least one psychiatric morbidity using the M.I.N.I 6.0, with 32 of them (65.3%) having only one diagnosis, while 16 of them (32.7%) had two diagnoses. Only one participant (2%) had more than two diagnoses. Major Depressive Disorder accounted for 60% of psychiatric morbidity, representing 16.96% of total participants. Prevalence of other psychiatric disorders was suicidality (5.65%), Mania (0.43%), Hypomania (0.43%), Alcohol abuse (0.87%), Psychotic disorder (0.87%), and Generalized Anxiety Disorder (3.91%).

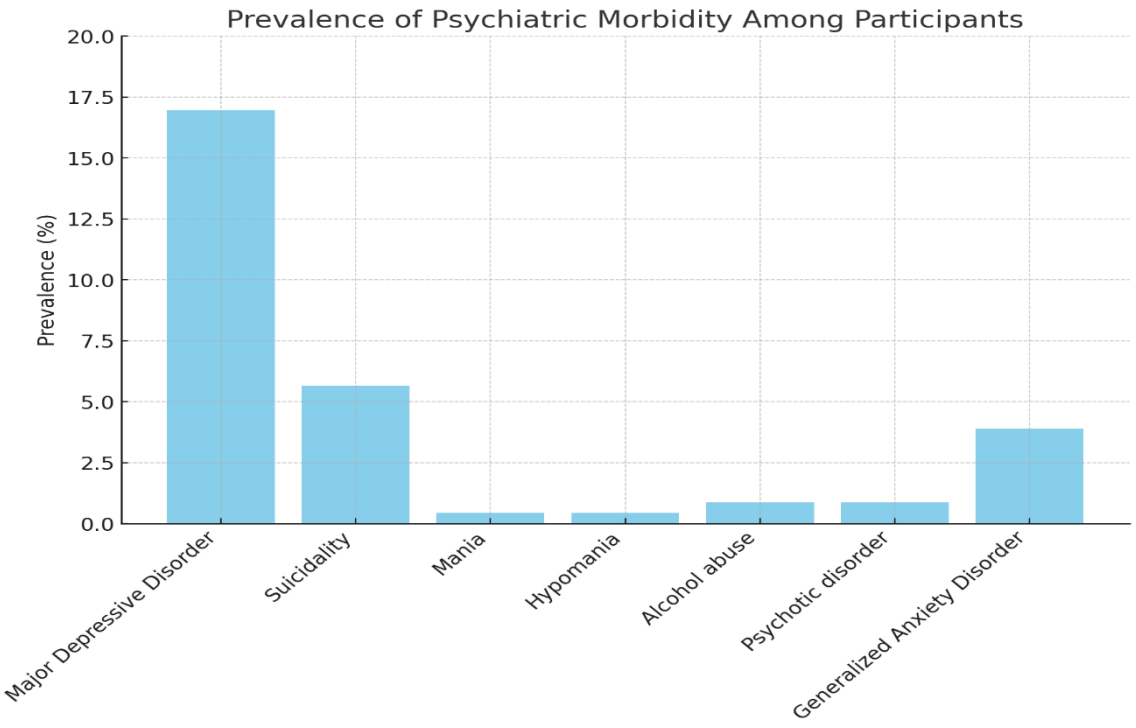

Fig 4 Psychiatric Morbidity among the respondents

Major Depressive Disorder (MDD) among the Respondents

In this study, major depressive disorder accounted for 60% of psychiatric morbidity in cancer patients, representing 16.96% of total participants. The majority of participants with depression had a current episode (30.8%), while a lesser proportion had a past episode (21.5%) or a recurrent episode (7.7%). Of the 39 participants who met the criteria for major depressive disorder, 11 (28.2%) also had scores on suicidality.

MDD in Cancer Patients with psychiatric morbidity (n=65) and in total respondents (N=230)

Variable	**n=65 (%) GHQ>/=3**	**N=230 (%)**
Major depressive disorder		
No	26 (40.0)	26 (11.3)
Current	20 (30.8)	20 (8.69)

Past	14 (21.5)	14 (6.09)
Recurrent	5 (7.7)	5 (2.17)

Suicidality among the Respondents

About one out of twenty participants (5.65%) had a suicide risk, with most being of low risk. However, one in five cancer patients (20%) with psychiatric morbidity is at risk of committing suicide. Urogenital cancers had the highest proportion of suicidality, with 13.9% of participants having scores of mild to moderate risk of suicide.

Suicidality in Cancer Patients with Psychiatric Morbidity (n=65) and in Total Respondents (N=230)

Variable **Suicidality**	**n=65 (%) GHQ>/=3**	**N=230 (%)**
No	52 (80.0)	52 (22.61)
Low	10 (15.4)	10 (4.35)
Moderate	2 (3.1)	2 (0.87)
High	1 (1.5)	1 (0.43)

Distribution of Suicidality by Cancer Type

Variables		**Suicidality**				
Current Diagnosis	**n**	**Low n=10 (%)**	**Moderate n=2 (%)**	**High n=1 (%)**	**% within Cancer type**	**% within suicidality n=13 (%)**
Breast	105	2 (20.0)	0 (0.0)	0 (0.0)	1.9	2 (15.4)
Urogenital cancers	36	3 (30.0)	2 (100.0)	0 (0.0)	13.9	5 (38.5)
Head and neck cancers	29	2 (20.0)	0 (0.0)	0 (0.0)	6.9	2 (15.4)
Gynaecological cancers	22	2 (20.0)	0 (0.0)	0 (0.0)	9.1	2 (15.4)
GIT	15	1 (10.0)	0 (0.0)	0 (0.0)	6.7	1 (7.7)
Skin and appendages	9	0 (0.0)	0 (0.0)	1 (100.0)	11.1	1 (7.7)

Socio-Demographic Correlates of Psychiatric Morbidity

The presence of a psychiatric morbidity was not significantly associated with age group ($\chi2=3.94$, df=2, p=0.14), sex ($\chi2=0.04$, df=1, p=0.83), marital status ($\chi2=2.57$, df=1, p=0.11), years of education ($\chi2=0.88$, df=2, p=0.64), and employment status ($\chi2=0.56$, df=1, p=0.45). Although not statistically significant, a higher proportion of participants aged 18-44 years (24.3%) and 45-59 years (24.5%) had psychiatric morbidity compared with 12.1% for those aged 60 years and above. Almost an equal proportion of males and females had psychiatric morbidity, while a higher proportion of unmarried persons (29.4%) met the criteria for psychiatric morbidity compared with those who were married (19.0%).

Table IV Socio-Demographic Correlates of Psychiatric Morbidity

Variables	**Psychiatric morbidity**					
	No (n=181)	**Yes (n=49)**	**Total (%)**	**χ2**	**df**	**P-value)**
Age						
18-44	53 (75.7)	17 (24.3)	70 (100)	3.94	2	0.14
45-59	77 (75.5)	25 (24.5)	102 (100)			
60 and above	51 (87.9)	7 (12.1)	58 (100)			
Sex						
Male	62 (79.5)	16 (20.5)	78 (100)	0.04	1	0.83
Female	119 (78.3)	33 (21.7)	152 (100)			
Marital status						
Married	145 (81.0)	34 (19.0)	179 (100)	2.57	1	0.11
Unmarried	36 (70.6)	15 (29.4)	51 (100)			
Years of education						
6 years or less	11 (84.6)	2 (15.4)	13 (100)	0.88	2	0.64
7-12	28 (73.7)	10 (26.3)	38 (100)			
> 12 years	142 (79.3)	37 (20.7)	179 (100)			
Employment						
Employed	119 (77.3)	35 (21.4)	154 (100)	0.56	1	0.45
Not employed	62 (81.6)	14 (18.4)	76 (100)			

**** Significant at P-value < 0.05**

Clinical Correlates of Psychiatric Morbidity

The presence of psychiatric morbidity was significantly associated with years aware of diagnosis ($\chi2=8.98$, $p=0.03$, $df=3$), past history of mental illness ($\chi2=17.82$, $p<0.001$, $df=1$), explanation of diagnosis ($\chi2=11.43$, $p=0.01$, $df=1$), prognosis ($\chi2=7.49$, $p=0.01$, $df=1$), and treatment options ($\chi2=13.18$, $p<0.001$, $df=1$), but was not associated with a family history of mental illness, family history of cancer related death, awareness of staging, or type of treatment received (Table V).

Table 5 Clinical Correlates of Psychiatric Morbidity

Variables	Psychiatric diagnosis			χ2	df	p-Value
	No (n=181)	Yes (n=49)	Total (%)			
Time since becoming aware of diagnosis						
< 1 year	37 (20.4)	13 (26.5)	50 (21.7)	8.98	3	**0.03****
1-5 years	131 (72.4)	30 (61.2)	161 (70.0)			
6-10 years	11 (6.1)	2 (4.1)	13 (5.7)			
> 10 years	2 (1.1)	4 (8.2)	6 (2.6)			
Do you know the staging?						
No	49 (27.1)	8 (16.3)	57 (24.8)	2.39	1	0.12
Yes	132 (72.9)	41 (83.7)	173 (75.2)			
Was the diagnosis explained to you?						
No	145 (80.6)	28 (57.1)	173 (75.6)	11.43	1	**0.01****
Yes	35 (19.4)	21 (42.9)	56 (24.4)			
Prognosis explained						
No	139 (76.8)	28 (57.1)	167 (72.6)	7.49	1	**0.01****
Yes	42 (23.2)	21 (42.9)	63 (27.4)			
Treatment options explained						
No	155 (86.1)	31 (63.3)	186 (81.2)	13.18	1	**0.001****
Yes	25 (13.9)	18 (36.7)	43 (18.8)			
Surgical Treatment						
No	134 (74.0)	35 (71.4)	169 (73.5)	0.13	1	0.71
Yes	47 (26.0)	14 (28.6)	61 (26.5)			

Chemotherapy						
No	142 (78.5)	37 (75.5)	179 (77.8)	0.19	1	0.66
Yes	39 (21.5)	12 (24.5)	51 (22.2)			
Radiotherapy						
No	95 (52.5)	26 (53.1)	121 (52.6)	0.01	1	0.94
Yes	86 (47.5)	23 (46.9)	109 (47.4)			
Past history of mental illness						
No	2 (1.1)	7 (14.3)	9 (3.9)	17.82	1	**0.001****
Yes	179 (98.9)	42 (85.7)	221 (96.1)			
Family history of mental illness						
No	11 (6.1)	4 (8.2)	15 (6.5)	0.28	1	0.60
Yes	170 (93.9)	45 (91.8)	215 (93.5)			
Family history of cancer-related death						
No	32 (17.7)	5 (10.2)	37 (16.1)	1.60	1	0.21
Yes	149 (82.3)	44 (89.8)	193 (83.9)			

**** Significant at p-value < 0.05**

To determine the strength and direction of effect, the significant variables associated with psychiatric morbidity (time since awareness of diagnosis, diagnosis explained, prognosis explained, and a past history of mental illness) were entered into logistic regression. Only past history of mental illness remained statistically significant but was negatively correlated to having psychiatric morbidity (OR=0.03, p<0.001, CI=0.0030-0.2506). Although the degree of association was not statistically significant, participants who had known of their cancer diagnosis for over ten years were 2.14 times more likely to have psychiatric morbidity than those who had known for less than a year. However, those who had known of their diagnosis for 1-5 years and 5-10 years were less likely to have psychiatric morbidity (OR=0.74, p=0.50, CI=0.3051-1.7836 and OR=0.55, p=0.56, CI=0.0753-4.0224 respectively). Participants who were informed of diagnosis (OR=3.11, p=0.10, CI=0.7938-12.2196) and treatment options (OR=2.31, p=0.11, CI=0.8363-6.4010) were more likely to have psychiatric morbidity, while being informed of prognosis (OR=0.78, p=0.71, CI=0.2102-2.8823) was less likely associated with having psychiatric morbidity.

Logistic Regression analysis of clinical correlates of psychiatric morbidity

Variables	OR	Standard error	P-value	CI
Time since aware of diagnosis (RC= Less than 1 year)				
1-5 years	0.74	0.33	0.50	0.3051 – 1.7836
6-10 years	0.55	0.56	0.56	0.0753 – 4.0224
Greater than 10 years	2.14	2.58	0.53	0.2024 – 22.6889
know the staging (RC=No)				
Yes	2.26	1.13	0.10	0.8529 – 6.0057
Diagnosis explained (RC=No)				
Yes	3.11	2.17	0.10	0.7938 – 12.2196
Prognosis explained (RC=No)				
Yes	0.78	0.52	0.71	0.2102 – 2.8823
Treatment options explained (RC=No)				
Yes	2.31	1.20	0.11	0.8363 – 6.4010
Surgical (RC=No)				
Yes	0.91	0.40	0.83	0.3872 – 2.1502
Chemotherapy (RC=No)				
Yes	0.91	0.41	0.83	0.3764 – 2.1815
Radiotherapy (RC=No)				
Yes	1.04	0.41	0.93	0.4812 – 2.2324
Past history of mental illness(RC=No)				
Yes	0.03	0.03	0.00**	0.0030 – 0.2506

**** Significant at p-value < 0.05**

Discussion

Socio-Demographic Characteristics of Respondents

The mean age of participants in this study was 51 years ±12, similar to that in data from two population-based cancer registries in Nigeria, the Abuja-Based Cancer Registry (ABCR) and the Ibadan-Based Cancer Registry (IBCR),[16,17,] and from a previous study in Ilorin by.[18] This is also similar to findings from a study in Turkey with a mean age of 53.7±14.2.[19]

The male-to-female ratio in this study was around 1:2, similar to the sex distribution in the ABCR and IBCR study in Ilorin.[16,18,19] However, a study by.[20] at the University of Heidelberg, Germany, showed a different sex distribution of 60.3% males and 39.7% females; while another study conducted at the Pamukkale University Hospital, Turkey, showed almost equal sex distribution (male 48.7%, female 51.3%).[20] This may be attributable to geographical differences in the sex distribution of cancers.

Cancer distribution among the respondents

Overall, this study found breast cancer (45.7%) to be the most common cancer, followed by urogenital cancer (15.7%). The study by Makanjuola and Buhari showed a different pattern from this study, with colon cancer being the second most common cancer after breast cancer.[18]

In this study, breast cancer was the most common cancer in females (68.4%), while urogenital cancers were the most common in males (43.6%). This is in keeping with findings in the ABCR and IBCR that identified prostate cancer and breast cancer as the most common cancers in males and females, respectively.[16,17] These figures are also close to the findings in the pilot phase of this study of 50% urogenital cancers in males and 60% breast cancer in females.

Psychiatric morbidity among the Respondents

In this study, 21.37% of participants met the criteria for a psychiatric diagnosis using M.I.N.I 6.0, including Major Depressive Disorder (16.96%), suicidality (5.65%), Mania (0.43%), Hypomania (0.43%), Alcohol abuse (0.87%), Psychotic disorder (0.87%), and Generalized Anxiety Disorder (3.91%). These figures are mostly lower than the findings by[18] at the University of Ilorin Teaching Hospital, where the prevalence of psychiatric morbidity in cancer patients was found to be 44.4%. The lower prevalence in this study may be due to the fact that the Ilorin study was carried out among inpatients, while this study was carried out in an outpatient setting, in addition to using different diagnostic instruments.[19,21]

The prevalence of depression in cancer patients in this study was 16.96%, which is only slightly higher than the finding from a systematic review, which put the prevalence of depression in cancer outpatient settings between 4-16%.[21] but lower than the findings in the study by[18] which found depression to occur in 20.6% of cancer in-patients, and another study by[19] at the University College Hospital, Ibadan, which found a prevalence of 30%. The figures from the Ilorin and Ibadan studies are also higher than the estimate for in-patient settings (4-14%) from the systematic review by[22]. The prevalence of major depressive disorder in breast cancer patients in this study was 16.2%, similar to the finding of 16.9% prevalence of major depressive disorder among breast cancer outpatients in Lagos by[23]. Depression frequently affects cancer patients due to a mix of emotional, biological, and social factors. Psychologically, the diagnosis can cause fear, anxiety, and grief over loss of health or independence. Biologically, cancer and its treatments may alter brain chemistry, impacting mood, while symptoms like pain, fatigue, and sleep disturbances worsen depressive feelings. Socially, isolation, strained relationships, and financial stress add to the burden, making depression a common yet often overlooked challenge in cancer care.

The finding of suicidality associated with cancers in this study (5.65%) is in agreement with previous research that found cancer to be the only medical condition associated with suicide, with about 9% of cancer patients dying as a result of suicide.[24] In a study in Ilorin, Nigeria, 3.2% of cancer patients deliberately harmed themselves.[18,] but the figure might have been higher if it included patients who had been having thoughts of suicide and feelings of hopelessness but had not harmed themselves. Among those with suicidal thoughts in this study, 10 (76.9%) were of low risk, while two (15.4%) were of moderate risk, and one (7.6%) was of high risk.

Malignancies mostly associated with suicide include prostate cancer, pancreatic cancer, lung cancer, and head and neck cancers, especially in patients aged 80 and above.[24] In this study, urogenital cancers (the majority being prostate cancer) had the highest proportion of participants, with 13.9% of them meeting the criteria for low to moderate suicide risk. In this study, GAD accounted for 13.8% of psychiatric morbidity

in cancer patients, occurring in 3.91% of cancer patients. A study at the University of Ilorin Teaching Hospital, Nigeria, found 7.9% of cancer patients to meet the criteria for GAD.[18] The lower prevalence in this study may be due to the use of an outpatient population and different study instruments.

In African cultures, cancer disclosure is heavily influenced by family, community, and spiritual beliefs, with diagnoses often first shared with relatives rather than directly with patients. The illness is commonly seen as fatal or spiritually caused, leading to cautious or partial disclosure and the use of euphemisms to protect the patient's emotional well-being. While traditional practices prioritize collective decision-making and hope, modern education and social change are gradually encouraging more open, patient-centered communication, challenging healthcare providers to balance respect for cultural norms with ethical obligations of autonomy and informed consent.

Factors associated with psychiatric morbidity in cancer patients

This study found the presence of psychiatric morbidity to have a significant association with years of awareness of diagnosis, past history of mental illness, and disclosure of diagnosis, prognosis, and treatment options. This is in keeping with previous studies that found psychiatric morbidity to be associated with poor communication about the illness, duration of illness, and a past history of mental illness.[19,23,21]

In this study, participants who had been aware of their diagnosis for 1-5 years and 6-10 years were less likely [OR=0.74 and OR=0.55, respectively] to have psychiatric morbidity than those who had been aware for less than a year. However, those who had been aware of their diagnosis for more than 10 years were 2.14 times more likely to have psychiatric morbidity. This may suggest high levels of psychological distress when initially diagnosed with cancer, and during later stages of the illness, perhaps due to disease progression.

The finding that participants who were informed of their diagnosis and treatment options were more likely to have psychiatric morbidity, while those informed about their prognosis were less likely to have psychiatric morbidity, would suggest that talking to patients about possible outcomes can allay anxiety.[23]

Merely providing information about treatment options may be anxiety-provoking because these are treatment methods that the majority of patients in Nigeria are unfamiliar with.[19] Although not statistically significant, receiving radiotherapy was found to be associated with having psychiatric morbidity. This may be due to the perception of radiotherapy as an exotic form of treatment.[21]

Summary

In this Nigerian outpatient study (mean age 51 years, 1:2 male-to-female ratio), breast and urogenital cancers were most common. Psychiatric morbidity affected 21.4% of patients, mainly depression (17%) and suicidality (5.7%). Risk factors included duration of diagnosis awareness, past mental illness, and disclosure practices, with prognosis discussions reducing morbidity. Cultural norms strongly influenced disclosure. Routine screening for psychiatric morbidity and the integration of psycho-oncology services are essential components of comprehensive cancer care. Early identification, culturally sensitive communication, and multidisciplinary interventions can improve patient outcomes, enhance quality of life, and reduce the burden of untreated mental health conditions in cancer populations.

Limitations

This study was conducted among cancer outpatients at the National Hospital, Abuja; hence, the findings may not be generalized to the entire population of cancer patients in Nigeria. Furthermore, patients who could not communicate in English or Pidgin English were excluded, resulting in a sample that was predominantly literate. Although the pilot study revealed that the target population is multilingual and multi-ethnic, translation of instruments into various local languages was deemed impractical and thus not

attempted. Another limitation is that the study did not account for the presence of other chronic debilitating co-morbidities, which could influence the likelihood of psychiatric morbidity and shape patients' perspectives on end-of-life issues. Finally, as the study employed a cross-sectional design, causal inferences could not be established.

Recommendations

Healthcare providers should prioritize the mental health needs of patients living with cancer by ensuring timely referral of those with psychiatric disorders to appropriate specialists. There is also a need to strengthen communication with cancer patients, promoting openness in discussing diagnoses, prognoses, and treatment options. In addition, oncologists and other medical professionals working in oncology clinics should be trained in communication skills, particularly in addressing end-of-life concerns with empathy and sensitivity. Establishing psycho-oncology units within the oncology clinic of the National Hospital, Abuja, as well as in other oncology centers across Nigeria, would provide holistic care for this population. Future research should explore the attitudes of Nigerian cancer patients toward end-of-life issues using qualitative methods for deeper insight. Finally, the development of optional protocols that allow willing patients to provide advance directives may help in improving patient-centered care.

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