Rwanda Medical Journal RMJ

ORIGINAL ARTICLE Open Access

Screening for psychosocial distress and depression among cancer patients in a regional cancer centre in Nigeria: a cross-sectional study

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ABSTRACT

INTRODUCTION: Psychosocial distress and depression have been associated with poorer outcomes in cancer care, and routine screening is recommended. We aimed to determine the prevalence, pattern, and predictors of psychosocial distress and depression among cancer patients.

METHODS: The participants were 382 cancer patients (324 outpatients, 58 inpatients) who were recruited between February 2020 and November 2022. Each patient completed a structured questionnaire incorporating the patient-reported measures that screen for health status (Self-rated health), psychosocial distress (Distress thermometer), and depression (Two-item patient health questionnaire). We applied a threshold of ≥4, and ≥3 to define distress and depression, respectively. Correlation and binary logistic regression were used in the analysis. Statistical significance was defined by $p<0.05$.

RESULTS: The mean age of the patients was 49.7±14.5 years, and 45.6% (174/382) perceived their health status as poor. Concomitant illnesses were present in 29% of the patients. The mean distress score was 5.3 ± 2.5, with a range 0-10. The cancer patients who screened positive for distress selected more items from the "Problem List" compared to those without distress. The prevalence of psychosocial distress and depression were 77% (294/382) and 33% (126/382), respectively. The predictors of psychosocial distress were the presence of co-morbidities (AOR=2.6; 95%CI: 1.3-5.1) and good self-rated health status (AOR= 0.2; 95%CI: 0.1-0.3). The predictors of depression were the out-patient setting of care (AOR=0.4; 95%CI: 0.2-0.7) and good self-rated health (AOR= 0.3; 95%CI: 0.2-0.4).

CONCLUSION: Our findings support ambulatory care for cancer patients and the implementation of psychosocial screening guidelines in the oncology service.

Keywords: Cancer, depression, Nigeria, psychological distress

INTRODUCTION

The symptom burden arising from cancer, concomitant illnesses, and their treatment can result in considerable distress. The spectrum of psychiatric disorders in cancer includes depressive

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Received: 03th August 2023; **Initial decision given:** 03th September 2023; **Revised manuscript received:** 15th July 2024; **Accepted:** 07th November 2024.

 Publisher: Rwanda Biomedical Centre (RBC)/Rwanda Health Communication Center, P. O. Box 4586, Kigali. ISSN: 2079-097X (print); 2410-8626 (online)

Citation for this article: Arinze D.G. Nwosu; Edmund N. Ossai; Chukwudi A. Ilo, et al. Screening for psychosocial distress and depression among cancer patients in a regional cancer centre in Nigeria: a cross-sectional study. Rwanda Medical Journal, Vol. 81, no. 4, p. 10-21, 2024. https://dx.doi.org/10.4314/rmj.v81i4.3

disorders, adjustment disorder, anxiety disorders and personality disorders. Depression is easily the most studied psychosocial disorder in cancer patients and ranked as the most common psychiatric morbidity in a meta-analysis of 94 studies by Mitchell et al. [1]. Distress is a multifactorial, unpleasant experience of a psychological, social, spiritual, and/or physical nature that may interfere with the ability to cope effectively with cancer, its physical symptoms, and its treatment [2]. Distress is considered a more comprehensive term than strict clinical connotations such as depression or anxiety, and is devoid of stigma [3]. Distress is the increasingly preferred term in the psychosocial screening of cancer patients. Higher distress levels in cancer patients have been associated with poorer disease-related outcomes, including survival [4]. Depressive disorders have also been linked to increased mortality [5]. There is evidence that the implementation of distress screening programs has improved psychosocial care in cancer patients [6].

A major barrier to distress management has been the under-recognition of patients' psychosocial needs by the oncology team [7]. In 1999, the National Comprehensive Cancer Network (NCCN) panel developed the first set of standards and clinical practice guidelines for psychosocial care in cancer, which included routine screening for distress. Screening for distress in cancer patients has been endorsed by several cancer professional bodies, such as the American Psychosocial Oncology Society (APOS), the Association of Oncology Social Work (AOSW), the Oncology Nursing Society (ONS), and the International Psycho-Oncology Society (IPOS), among others [8, 9]. It has also been adopted in national cancer care guidelines [10, 11].

Several validated instruments are available for evaluating distress and depression in cancer patients, including the Distress thermometer (DT), Patient Health Questionnaire-2 (PHQ-2), Patient Health Questionnaire-9 (PHQ-9), Hospital Anxiety and Depression Scale (HADS), Edmonton Symptom Assessment System (ESAS), and the 18-item version of the Brief Symptom Inventory (BSI-18). However, the brevity, ease of use, and high sensitivity of the DT and PHQ-2 make them attractive options for routine distress screening in busy clinical settings. Both instruments have been adjudged to offer comparable discrimination levels for distress in cancer patients [12].

In Nigeria, structured cancer care is recent and psychosocial screening is not routine. Our study aimed to determine the pattern and predictors of distress and depression among cancer patients.

METHODS

Study design and setting

This questionnaire-based, cross-sectional study was conducted in the regional oncology center of the University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu, Southeast, Nigeria. The multidisciplinary oncology center was established in 2007. The center comprises various specialty oncology units, pain and palliative care, oncology pharmacy, oncology nursing, social work, and navigation units. Palliative care, surgery, radiotherapy, and chemotherapy, including targeted therapy, are provided. It does not currently incorporate the services of a regular psychiatrist, psychologist or chaplain. No form of routine distress screening is being implemented across the cancer care pathway.

Patients and methods

This research was conducted in compliance with the STROBE reporting guidelines for cross-sectional studies. The participants are cancer patients who were receiving care in the facility during the period of February 2020- November 2022. Written informed consent was sought from all the eligible diagnosed cancer patients who undertook care in the outpatient or inpatient settings of the center. The consenting patients were consecutively enrolled in the study. For adolescents and other minors, informed consent was obtained from their parents or guardians.

Children below 12 years were excluded from the study, as well as non-consenting patients. Any patient with a prior history, or treatment of a psychiatric condition was also excluded.

Data collection

Each patient completed a two-page structured questionnaire. Information obtained in the questionnaire included the demographic data of the patient and the source of funding for cancer care. Pre-existing co-morbidities, cancer type and phase of care were extracted from participants' medical records. Patient-reported measures that screen for health status (self-rated health), distress (DT), and depression (PHQ-2) were incorporated

into the questionnaire. Each correspondent was captured only once to prevent duplication of data. Nurse-based research assistants were trained for the data collection and to assist in completing the self-administered tools. They also provided translation into the local language when necessary.

Sample size determination

According to a previous study in a mixed cancer population, which put distress prevalence at 22.1 % [13], Sample size = $\frac{(z1-\alpha/2)^2\, P(1-p)}{d^2}$

Where z1-α/2 is the standard normal deviation at 5% type 1 error, p is the prevalence from a previous study, and d is the absolute error chosen as 5%.

Sample size = $\frac{1.962 \times 0.221(0.779)}{0.05^2} = 265$

Add 10% for attrition; the minimum total sample size for the survey is 292 patients.

Measurement tools

The measurement instruments used for the study are the original, unmodified English versions.

The Distress Thermometer (DT) and Problem List (PL). The DT is a single-item, patient-reported outcome measure (PROM) of psychological distress in cancer patients. It rates distress over the past week on a vertical visual analog scale from 0–10, with higher scores indicating higher distress. The National Comprehensive Cancer Network (NCCN) recommends using a score of ≥ 4 as a cut-off for distress [2]. The DT has been validated for distress screening across different care settings, cancer types, languages and countries [14]. Whereas the majority of researchers have aligned with the NCCN cut-off point, others have recommended a cut-off of 5, or 3 instead [14]. The PL is a checklist supplement to the DT with optional items that help to identify the unmet needs that have contributed to distress. The items are grouped under five domains: practical, family, emotional, spiritual/religious, and physical problems. The PL version utilized in this study consists of 39 items [2]. The DT may be used with or without the PL supplement.

Patient Health Questionnaire-2 (PHQ-2)

This brief PROM consists of the first 2 items of the PHQ-9. Depressed mood and anhedonia are scored from 0 to 3 depending on how frequently these have prevailed within two weeks of the interview. A possible range from 0 to 6 is reported for each respondent. A PHQ-2 score ≥ 3 had a sensitivity of 83%, a specificity of 90%, and a positive predictive value of 38.4% for major depression [15]. This threshold has been identified as the optimal cut-off point for screening purposes. The PHQ-2 has been adjudged to be an effective tool for identifying cancer patients with mood disorders, comparable to the longer PHQ-9 and superior to the widely used NCCN-DT [16]. As a screening tool, a positive screen should be further evaluated using instruments with high diagnostic accuracy.

Self-Rated Health/Perceived Health/Self-Reported Health (SRH)

The SRH is a widely used, single-item PROM that serves as a subjective indicator of overall health status. Despite its simplicity, it provides valid predictions of key health outcomes [17]. This study presented SRH in a Likert-type format with the options: excellent, very good, good, fair, or poor.

Data analysis

Data entry and analysis were done using International Business Machine, Statistical Product for Service Solutions (IBM-SPSS) statistical software version 25.0 (IBM Corp., Armonk NY, USA). For our data analysis, a threshold of ≥4 and ≥3 was used to define distress and depression, respectively. The sum of the items identified as having contributed to distress in the five PL domains by each patient represents the PL score. Self-rated health grading was dichotomized as good (excellent, very good, good) and poor (fair, poor). Funding for cancer treatment provided by humanitarian organizations and health insurance was categorized as support funding. Continuous variables were represented using mean and standard deviation, and if the data was skewed by the median. Categorical variables were presented using frequencies and proportions. Correlation analysis was used to determine the strength of the linear relationship between two continuous variables. Two outcome variables emerged from the study: psychosocial distress and depression. In determining the factors that are associated with the outcome variables, the characteristics of the patients and other variables that follow a logical sequence were cross-tabulated with the outcome variables. After the bivariate analysis using the Chi-square test of

statistical significance, variables with a p-value of <0.2 were included in the binary logistic regression model to determine the predictors of psychosocial distress and depression. The results of the logistic regression analysis were presented using adjusted odds ratio and 95% confidence interval. The level of statistical significance was determined by a p-value of <0.05.

Approval for the study was granted by the Research Ethics Committee of the University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu, Nigeria (NHREC/05/01/2008B-FWA00002458-1RB00002323).

RESULTS

Three hundred and ninety-six cancer patients were confirmed eligible and recruited as respondents in the study. Of these, 5 were incomplete/wrongly filled, while nine questionnaires were missing. Complete data from 382 cancer patients were analyzed.

Table 1 revealed that the mean age of the respondents was 49.7±14.5 years, the majority being females, 75.9%. Concomitant illnesses were present in 29.1% of the respondents. Only three patients (0.8%) had health insurance-funded care. Solid tumors of various types were present in 88.2% of patients, with 11.8% having hematological cancers. Breast cancer constituted 48.4% of the solid tumors. The care setting was mostly ambulatory (84.8%), and the majority of the patients (69.9%) were already undergoing treatment during their survey period. Figure 1 shows that 45.6% (174/382) of the respondents perceived their health status as fair or poor.

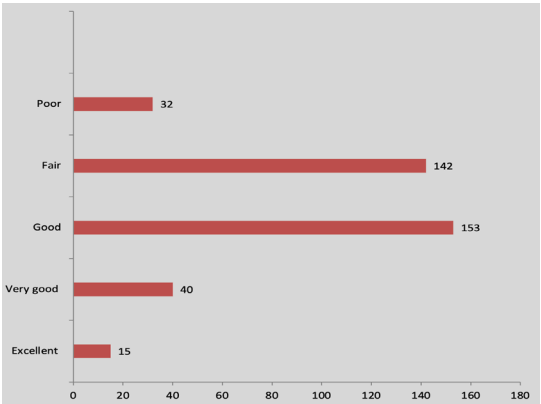

Figure 1: Self-reported health status of the respondents

Table 1: Socio-demographic and clinical characteristics of respondents

Variable	Frequency (n=382)	Percent (%)
Age of respondents		
Mean±SD	49.7±14.5	
Age of respondents in groups		
<30 years	31	8.1
30-39 years	63	16.5
40-49 years	97	25.4
50-59 years	84	22.0
≥60 years	107	28.0
Gender		
Male	92	24.1
Female	290	75.9
Marital status		
Married	253	66.2
Never married	65	17.0
Widowed	64	16.8
Presence of co-morbidities		
Yes	111	29.1
No	271	70.9
Source of funding for treatment		
Self	176	46.1
Family/Relations	192	50.3
Social support/ Health insurance	14	3.7
Employment status		
Unemployed	92	24.1
Self-employed	190	41.7
Paid employment	100	26.2
Type of cancer		
Solid tumors	337	88.2
Hematological cancers	45	11.8
Setting of care		
Out-patient	324	84.8
In-patient	58	15.2
Phase of care		
Pre-treatment	82	21.5
Treatment	267	69.9
Post-treatment	33	8.6
Modalities for treatment*		
Chemotherapy	244	63.9
Radiotherapy	78	20.4
Surgery	129	33.8

Table 2: Distress score and problem list scores of the respondents

Variable	Frequency (n=382)		Percent (%)	
Distress Thermometer score				
Mean =5.3 ±2.5 (range: 0-10)				
5	73		19.1	
7	57		14.9	
6	46		12.0	
8	45		11.8	
4	40		10.5	
3	28		7.3	
9	24		6.3	
0	24		6.3	
2	23		6.0	
1	13		3.4	
10	9		2.4	
Number of respondents with reported distress items in the various PL domains				
Practical problems				
Yes	318		83.2	
No	64		16.8	
Family problems				
Yes	139		36.4	
No	243		63.6	
Emotional problems				
Yes	294		77.0	
No	88		23.0	
Spiritual/religious problems				
Yes	54		14.1	
No	328		85.9	
Physical problems				
Yes	352		92.1	
No	30		7.9	
Problem list scores	Positive Distress screen (n=294)	No Distress (n=88)	Mann Whitney U	P value
Overall score = 11.2±6.2 (range: 0-31)	13.1±5.5	5.0±4.0	15.110	<0.001

Table 2 shows that the mean distress score was 5.3 ±2.5. The highest proportion of the respondents (73) had a distress score of 5, which was followed by a score 7 (57), and the least proportion (9) had a score of 10. Problem items in the physical domain were reported most frequently as contributing to distress in the respondents (92.1%). The overall PL score of the cohort was 11.2 ± 6.2 (range: 0-31). The PL score for the Distressed group (13.1± 5.5) was significantly higher than that of the non-distressed group (5.0 ± 4.0) (Mann Whitney U=15.110, p<0.001).

Figure 2 shows that the prevalence of psychosocial

distress among cancer patients was 77%. Figure 3 shows that the prevalence of depression among the cancer patients was 33%.

Table 3 shows that the respondents who had co-morbidities were about three times more likely to have psychosocial distress when compared with those who did not have any (AOR=2.6, 95%CI: 1.2-5.1). The respondents who perceived their health status as good were five times less likely to have psychosocial distress when compared with those who perceived their health status as poor (AOR=0.2, 95%CI: 0.1-0.3).

Table 4 shows that the respondents who were managed as out-patients were 2.5 times less likely to have depression when compared with those who were managed as in-patients (AOR=0.4, 95%CI: 0.2-0.7). Similarly, the respondents who perceived their health status as good were three times less likely to be depressed when compared with those who perceived their health status as poor (AOR=0.3, 95%CI: 0.2-0.4).

There was a moderate, negative correlation between self-rated health status and psychosocial distress. Increases in self-rated health status correlated with decreases in psychosocial distress, which was found to be statistically significant (n=382, r = -0.467, p<0.001). Similarly, there was a moderate, negative correlation between self-rated health status and depression, as greater approval of self-rated health status correlated with lower depression score, and this was found to be statistically significant (n=382, r =-0.415, p<0.001).

Conversely, there was a moderate positive correlation between psychosocial distress and depression, as elevated psychosocial distress correlates with increases in depression score, and this was found to be statistically significant (n=382, r =0.425, p<0.001) (Table 5).

DISCUSSION

The majority of cancer patients were managed and screened in the outpatient setting. All but a few studies on distress screening in cancer survivors had been conducted in outpatient settings, owing to the trend towards ambulatory care for cancer treatment. The transition from in-patient to ambulatory care for cancer patients has only evolved in the past few decades [18]. The new paradigm was driven by the lack of in-patient beds, the need to improve patient experience, and the desire to expand treatment capacity for the surging cancer population. This trend has been enabled by advances in targeted therapy using oral, less toxic tyrosine kinase inhibitors and supportive care medications such as potent anti-emetics, among others. However, some patients still require hospitalization owing to the nature of the recommended treatment and the level of supportive care required for their safe administration. These may include treatment for severe cancer-related symptoms, concomitant illnesses, and some cancer-specific therapies.

The prevalence of distress in our cancer patients was very high and disconcerting. An earlier study conducted with the Kessler Psychological Distress Scale (a general-purpose health survey instrument) reported a similar prevalence among female cancer patients in Southwest Nigeria [19]. The reported prevalence of distress among cancer

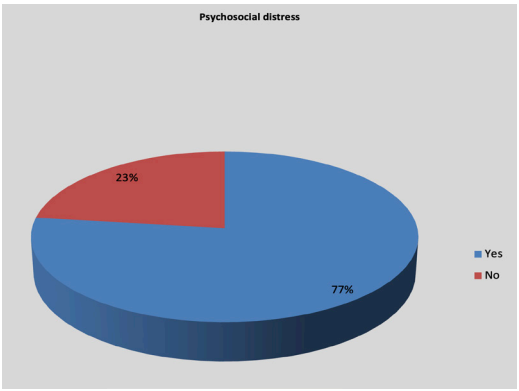

Figure 2: Prevalence of psychosocial distress among the respondents

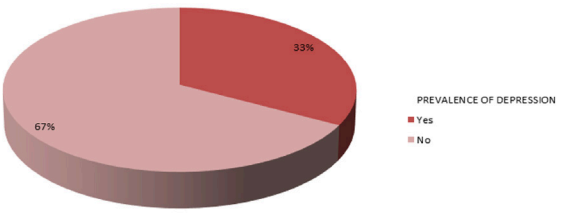

Figure 3: Prevalence of depression among the respondents

Table 3: Factors associated with psychosocial distress among the respondents

Variable	Psychosocial distress (n=382)		p-value**	AOR (95% CI)***
	Yes N (%)	No N (%)		
Age of respondents in groups				
<40 years	68 (72.3)	26 (27.7)	0.635	NA
40-49 years	71 (73.2)	26 (26.8)		
50-59 years	67 (79.8)	17 (20.2)		
≥60 years	88 (82.5)	19 (17.8)		
Gender				
Male	72 (78.3)	20 (21.7)	0.734	NA
Female	222 (76.6)	68 (23.4)		
Marital status				
Married	200 (79.1)	53 (20.9)	0.175	1.5 (0.9- 2.7)
Single *	94 (72.9)	35 (27.1)		1
Presence of co-morbidities				
Yes	97 (87.4)	14 (12.6)	0.022	2.6 (1.3- 5.1)
No	197 (72.7)	74 (27.3)		1
Source of funding for treatment				
Self-sponsored	137 (77.8)	39 (22.2)	0.510	NA
Family/Relations	148 (77.1)	44 (22.9)		
Support	9 (64.3)	5 (35.7)		
Employment status				
Unemployed	68 (73.9)	24 (26.1)	0.160	1.3 (0.6- 2.6)
Self-employed	154 (81.1)	36 (18.9)		1.9 (0.8- 4.3)
Paid employment	72 (72.0)	28 (28.0)		1
Type of cancer				
Solid tumors	258 (76.6)	79 (23.4)	0.607	NA
Hematological cancers	36 (80.0)	9 (20.0)		
Setting of care				
Out-patient	243 (75.0)	81 (25.0)	0.031	0.8 (0.3- 1.9)
In-patient	51 (87.9)	7 (12.1)		1
Phase of care				
Pre-treatment	67 (81.7)	15 (18.3)	0.048	1.7 (0.6- 4.6)
Treatment	207 (77.5)	60 (22.5)		1.9 (0.8- 4.3)
Post-treatment	20 (60.6)	13 (39.4)		1
Self-rated health status				
Good	132 (63.5)	76 (36.5)	<0.001	0.2 (0.1-0.3)
Poor	162 (93.1)	12 (6.9)		1

***p-value on bivariate analysis ***Adjusted odds ratio, 95% confidence interval*

Table 4: Factors associated with depression among the respondents

Variable	Depression (n=382)		p-value**	AOR (95% CI)***
	Yes N (%)	No N (%)		
Age of respondents in groups				
<40 years	32 (34.0)	62 (66.0)	0.776	NA
40-49 years	34 (35.1)	63 (64.9)		
50-59 years	29 (34.5)	55 (65.5)		
≥60 years	31 (29.0)	76 (71.0)		
Gender				
Male	27 (29.3)	65 (70.7)	0.395	NA
Female	99 (34.1)	191 (65.9)		
Marital status				
Married	82 (2.4)	171 (67.6)	0.739	NA
Single	44 (34.1)	85 (65.9)		
Presence of co-morbidities				
Yes	42 (37.8)	69 (62.2)	0.197	1.1 (0.7- 1.9)
No	84 (31.0)	187 (69.0)		1
Source of funding for treatment				
Self-sponsored	60 (34.1)	116 (65.9)	0.623	NA
Family/Relations	63 (32.8)	129 (67.2)		
Support	3 (21.4)	11 (78.6)		
Employment status				
Unemployed	32 (34.8)	60 (65.2)	0.904	NA
Self-employed	61 (32.1)	129 (67.9)		
Paid employment	33 (33.0)	67 (67.0)		
Type of cancer				
Solid tumors	113 (33.5)	224 (66.5)	0.534	NA
Hematological cancers	13 (28.9)	32 (71.1)		
Setting of care				
Out-patient	92 (28.4)	232 (71.6)	<0.001	0.4 (0.2- 0.7)
In-patient	34 (58.6)	24 (41.4)		1
Phase of care				
Pre-treatment	31 (37.8)	51 (62.2)	0.231	NA
Treatment	88 (33.0)	179 (67.0)		
Post-treatment	7 (21.2)	26 (78.8)		
Self-rated health status				
Good	40 (19.2)	168 (80.8)	<0.001	0.3 (0.2-0.4)
Poor	86 (49.4)	88 (50.6)		1

***p-value on bivariate analysis; NA Not applicable, ***Adjusted odds ratio, 95% confidence interval*

Table 5: Correlation matrix of self-rated health status, psychosocial distress, and depression

	Correlation co-efficient r, p-value, (n=382)			
	Age in years	**Perceived health status**	**Psychosocial distress**	**Depression score**
Age in years	1	r =-0.084	r =-0.004	r = 0.007
		p = 0.099	p = 0.938	p = 0.885
Self-rated health status		1	r =-0.467	r =-0.415
			p < 0.001	p < 0.001
Psychosocial distress			1	r = 0.425
				p < 0.001
Depression score				1

patients in the literature has shown considerable variation. This may have been influenced by the different screening tools and cut-off values, cancer types under consideration, and care settings, among others. For instance, Grassi et al. reported a 47% prevalence using a DT cutoff score ≥4, whereas a prevalence of 33% could have been obtained had a cut-off score ≥ 5 been considered [20]. Studies on cancer patients in other LMICs have reported similar distress levels, including Ebob-Anya and Bassah in Cameroon (69.2%) and Negussie et al. in Ethiopia (64.5%) [21,22]. This contrasts with the distress prevalence rates of 47% and 28.8% reported among cancer patients in developed countries [20, 23]. Only three (0.8%) of the patients in our study had health insurance-funded cancer care. While the source of funding did not emerge as a risk factor for distress in our study, there is evidence that financial toxicity is associated with greater distress and worse quality of life (QOL) in cancer [24]. Being of low income and lack of health insurance coverage are risk factors for financial toxicity [25]. The economic milieu and poor health insurance coverage in LMICs such as Nigeria and Cameroon compel cancer patients to spend a disproportionate amount of their lean earnings to fund their treatment, thereby predisposing them to financial toxicity [26].

One patient selected 33 out of the 38 items of the PL as contributing to his distress. We found a significantly higher PL score in the 'distressed group' than in the "non-distressed group," indicating that the cancer patients who screened positive for distress selected more items from the PL. This trend had earlier been reported from a secondary data analysis of distress ratings by VanHoose et al. [27].

No socio-demographic factor predicted distress or depression in our cohort of cancer patients. This finding aligns with the report of a multicenter study conducted in Cameroon by Ebob-Anya and Bassah [21]. This could suggest that clinical and environmental issues may have played a predominant role in their distress. However, other studies contend that lower age, female gender, marital status, and low educational level are risk factors for distress [22, 23].

The predictors of distress in our study are the patient's self-rated health and the presence of concomitant illnesses. Co-morbid illnesses were present in 29% of our cancer patients compared to 35% of the cancer patients studied by Negussie et al. [22]. In both studies, the presence of concomitant illnesses increased the risk of distress. The patient's self-rated health and the care setting predicted depression in our study. Garber et al. conducted depression screening in head and neck cancer patients in an ambulatory setting using the PHQ-2 instrument [28]. They used the same cut-off threshold of ≥ 3 for the positive screen as in our study but reported a much lower prevalence of 14%. Our sample consisted of 15.2% cancer in-patients, with those treated in the ambulatory setting being 2.5 times less likely to have depression compared to those who were hospitalized. This difference in the care setting of the two studies may have contributed to the difference in depression prevalence. Further evidence for the impact of care settings on the depression status of cancer patients was provided by Naser et al. [29]. The

researchers used the HADS instead, in assessing for depression but similarly reported a higher prevalence of depression in hospitalized cancer patients (37.1%) compared to those managed in the ambulatory setting (14.5%).

We found a negative correlation between self-rated health and both distress and depression but a positive correlation between distress and depression. Ebob-Anya and Bassah similarly reported a negative correlation between the Quality of Life (QOL) and both distress and depression but a positive correlation between distress and overall Hospital Anxiety and Depression score [23]. However, previous studies examining the validity of equating self-rated health status and QOL outcomes in research cautioned that the two concepts are not necessarily the same despite some overlap in their constructs [30,31].

Limitations: We note that the most recent update of the Distress thermometer PL has 42 items with modifications in the name and number of items in each of the five domains [32]. Our study employed the original PL version comprising 39 items [2], having been commenced prior to the development of the latest PL version. We acknowledge that the level of distress observed in cancer patients may not necessarily be ascribed to cancer since the DT measures psychosocial distress in the respondent, irrespective of the source.

CONCLUSION

We conducted a study to determine the pattern and predictors of distress and depression among cancer patients with a mix of cancer types across the care continuum. Rates of psychosocial distress (77%) and depression (33%) were considerable, especially among cancer patients with concomitant illnesses, poor self-rated health status, and those accessing care in the in-patient setting. Our findings provide support for the outpatient setting of care and the implementation of routine screening programs in the oncology center.

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