

Assessment of Prevalence and Associated Factors of Common Mental Disorders among Cancer Patients Attending St. Paul's Hospital Millennium Medical College Oncology OPD, Addis Ababa, Ethiopia

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ABSTRACT

Background: common mental disorders are common co-morbid among cancer patients affecting, 29–60% of cancer patients. Therefore, the aim of this study is to determine the magnitude of common mental disorders (CMDs) and factors associated with it among cancer patients in Saint Paul Hospital Millennium Medical College (SPHMMC) in Addis Ababa, Ethiopia.

Methods: Hospital based analytic cross-sectional study which included 179 cancer patients was conducted in SPHMMC, Addis Ababa, Ethiopia. CMDs were assessed using standard tool Kessler 10. Descriptive statistics were done based on the standard Kessler 10 cut off points (0–19, 20–24, 25–29, and 30–50). Bivariate and multivariate logistic regression was done to identify factors associated with CMD.

Result: The prevalence of CMDs among breast cancer patients were 27.4% (49/179). According to the Kessler 10 score categorization, (19/179 (10.6%), 17/179 (9.5%), and 13/179 (7.3%) of these patients were having mild, moderate and severe CMD respectively. 130/179 (72.6%) were likely to be well. Comorbid medical illness, employment and family history of CMD were significantly associated with CMDs.

Conclusion: This study found that one in four among cancer patients had CMD. This study demonstrated significant association between CMD and chronic medical illnesses, family history, & employment status among adult cancer patients. Researcher should aware oncology unit on the findings, and Practitioners and policy maker's needs to be sensitive to findings of this study

Keywords: CMD, Kessler 10, cancer, Ethiopia

INTRODUCTION

Background

Study of the relationship between poor physical health and high mortality in people with mental illness has a long history. Psychological distress is frequently observed among cancer patients during the clinical course of the disease and patients are confronted with problems such as fear of death, unresolved issues and pain. Previous studies have indicated that psychological disorders are common in patients with cancer and might have significant influence on overall morbidity and

mortality, though, adequate data are lacking to better assess this influence and the potential benefits of interventions. For adults diagnosed with cancer and other chronic illnesses, the “risk of psychological disability” is nearly six times higher than for adults not living with cancer. Moreover, population-based data indicate that adult cancer survivors are more than twice as likely to have “disabling psychological problems” as adults without cancer [1].

Although the adverse effects of cancer diagnosis and treatments on mental health are known, about less than 10% of patients are estimated to be referred to seek help. The primary purpose of this study is to obtain baseline information on mental health of

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Received date: July 10, 2021; Accepted date: October 12, 2021; Published date: October 22, 2021

Citation: Worku S, Desta H, Mamo G, Tesfaye M, Abebe M, Agumasie M (2021) Assessment of Prevalence and Associated Factors of Common Mental Disorders among Cancer Patients Attending St. Paul's Hospital Millennium Medical College Oncology OPD, Addis Ababa, Ethiopia. J Psychiatry 24: p056

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patients with cancer at oncology outpatient clinic, and to identify risk factors that may provide clues healthcare practitioners in recognizing those needing psychiatric help in oncology practice [2].

One out of three people diagnosed with cancer also wind up struggling with a mental health disorder such as anxiety and depression. Many people seem to cope with the natural stress of a cancer diagnosis, but for about 32% of cancer patients, the diagnosis may prompt a full-blown psychological disorder [3].

Depression affects performance of routine activities, quality of sleep, and productivity of the affected individual. It can also negatively affect the outcome of individual's chronic diseases such as diabetes, cardiovascular diseases, cancer, and obesity. On the other hand, anxiety is a response of body to a perceived threat which is triggered by an individual's beliefs, feelings, and thoughts and is characterized by worried thoughts, tension, and increased sympathetic outflow, difficulty of swallowing, dizziness, and chest pain. Anxiety can often co-exist with major depression which worsen the clinical course [4].

Cancer is a rapidly growing public health problem in low- and lower-middle-income countries (LLMICs). There is evidence from upper-income countries that co morbid mental illness is common and can adversely affect cancer outcomes. Little is known about this burden in LLMICs [5].

According to the study done on prevalence of depression and pain complaints, in Addis Ababa university in 2016, prevalence of depression was 39.9% and prevalence of pain complaint was 70%.

Having a good understanding on the prevalence and risk factors of psychological problems among cancer patients is helpful in identifying high-risk patients. Although mental illnesses are significantly prevalent in cancer patients, there is little information available on the extent of mental disorders in cancer patients in developing country like Ethiopia. The objective of the study was to determine the prevalence of CMDs and associated factors among patients with Cancer on follow up at SPHMMC

METHODOLOGY

Study Setting and Period

Study on prevalence of CMDs in patients with cancer was conducted at SPHMMC Oncology OPD, Addis Ababa Ethiopia, from 01/09/2020 to 31/10 /2020GC.

Saint Paul's hospital is the second largest referral public hospital in Addis Ababa, Ethiopia. The Hospital was established in 1968 and opened medical school in 2007. Its core service includes the provision of medical care, teaching and research. The Hospital's Oncology department started service around one year and half ago and currently provides OPD service for adults, children and adolescents. SPHMMC opened its oncology department to be the second Hospital offering cancer treatment in the country, following Black Lion Hospital, and shared Black Lions burden for Chemotherapy. SPHMMC is also building a nine-story building to become an Oncology excellence center for the

country. It also provides teaching service for both undergraduate and post graduate medical education [6].

Study Design

Hospital based analytic cross-sectional study design was conducted on the prevalence and associated factors of common mental disorders in patients with cancer attending SPHMMC oncology OPD, using interviewer administered structured questionnaire to collect data [7].

Populations

Source Population

The source population was all patients attending SPHMMC oncology OPD diagnosed to have cancer by the attending physician. The sampling frame was all patients diagnosed with cancer registered on follow up and new patient registry at SPHMMC oncology OPD [8].

Study Population

Study population included all patients attending SPHMMC oncology unit diagnosed to have cancer by attending oncology unit that fulfill the inclusion criteria [9].

Inclusion and Exclusion Criteria

Inclusion Criteria

- All adult cancer patients attending the oncology clinic at SPHMMC during the study
- period
- Age greater than or equal to 18 years.
- Those who gave informed consent

Exclusion Criteria

- Unable to hear or speak
- The presence of severe physical, cognitive or language impairments that would interfere
- with a patient's ability to give informed consent for research

Sample Size Determination

The number of clients to be involved in the survey was determined using the formula.

$$N = \frac{(Z_5)^2 \times P(1-P)}{d^2}$$

$$N = (1.96)^2 \times 0.63(1 - 0.63) / (0.05)^2$$

$$N = 353$$

N= Sample size

P= Prevalence of comorbid CMD in cancer patients

Z= Z-score at five level of significance

d= margin of sampling error

The sample size was calculated assuming the prevalence of comorbid CMD in cancer patients is as 30%, sampling error to be 5% and with 95% confidence interval. Hence the sample size was calculated to be 358.

Since total population is < 10,000 correction formula was used.

$$N_f = (N) (n_i)$$

$$N + n_i$$

$$N_f \sim 163$$

Where N = Average number of patients with cancer attending SPHMMC Psychiatry OPD in one-month duration = 290, number of cancer patients who visited SPHMMC oncology opd, from July 1/20- August 6/2020, calculated from the log book of oncology OPD: SPHMMC, July, 2020.

With the assumption of 10% nonresponsive rate, the number of clients involved in the survey was determined to be 179.

Sampling technique

Convenient Sampling technique was employed to select patients who participate in the survey.

Sampling Procedure

At SPHMMC, Patients were interviewed after they had completed the normal OPD visit. The average total number of cancer patients expected to visit the hospital was counted to be 290 in one-month period as counted from the register. The first participant interviewed was the 1st patient with cancer who completed the OPD visit and became the 1st to give consent. In cases of patients who were not interested to participate in the study, the next patient was a candidate until a willing person was met, and continued from the last patient who gave the consent to participate [10].

Data Collection Procedure and Measurement

The Questionnaire

A structured questionnaire adapted from socio-demographic profiles of the client and semi-structured questionnaire developed from a diagnostic tool, Kessler-10 (Kessler psychological distress scale (k10)) to screen comorbid CMD, was used.

Kessler-10 is a 10-item questionnaire intended to yield a global measure of distress based on questions about anxiety and depressive symptom that a person has experienced in the most recent 4 week period with specificity and sensitivity of 83% and 86% respectively. Scores will range from 10 to 50.

People seen in primary care who score under 20 are likely to be well; score 20-24 are likely to have a mild mental disorder; score 25-29 are likely to have moderate mental disorder; and score 30 and over are likely to have a severe mental disorder

The questionnaire was translated to Amharic & Afan-Orommo and back translated to English by mental health professionals who are not used to the K10, to ensure the validity and reliability of the instrument.

Data Collection Method

A structured questionnaire was developed based primarily on sources from previous researches and literature review and the above-mentioned diagnostic tools with some modification to fit into our setup. The data was collected during working days.

Questionnaire was filled by trained nurses after the necessary briefing was given by principal investigator.

Twenty questionnaires were pre-tested at SPHMMC, oncology OPD, to check for clarity of the questions and completeness by the data collectors and principal investigator. Appropriate correction was done to the questionnaires if gaps were found during pretesting. The pretest participants were excluded from study.

Data Entry and Analysis

After completion of data collection, the data was cleared & entered in Epi Info version 7 and analyzed using SPSS version 20 and was presented with tables. An association was determined using a logistic regression analysis specifically bivariate logistic regression analysis.

Data Quality Assurance

There was a one-day training program by the principal investigator to be given to the data collectors before actual data collection period.

The questionnaire was produced and organized as simple as possible so that it could easily be understood by both data collectors and respondents and it was pretested before actual data collection period.

Study variables

Independent Variables

Age, sex, marital status, educational status, average monthly income, employment status, social support system, duration of illness, type of current treatment, side effects from treatment, comorbid chronic medical illnesses, family history of CMD

Dependent Variables

Kessler Score (CMD)

Ethical consideration

Before commencing data collection, ethical clearance and a letter of support was obtained from SPHMMC, research ethical review committee.

After final clearance and approval, the letter was submitted to SPHMMC Psychiatry department Office. Objective and use of the interview were explained to the respondents and their verbal consent was obtained. It was explained for Study participants as they have the full right not to participate in the study if they were not willing or to quit their participation in the study at any time if they want. To ensure confidentiality of information, participants name was not used during data collection and this was clearly explained to participants of the study. The

questionnaires and others tools were coded to exclude showing names; no references were made in oral or written reports that could link participants to the research. No conflict of interest was considered in doing the research. Patients who were found by the study to have clinically significant common mental disorders were linked to receive appropriate treatment.

Dissemination of results

The findings of this study are to be presented to SPHMMC, psychiatry department. It will also be sent to public health department for school publication presented in scientific conferences and published in a scientific journal. It also will be sent to local and international journal clubs to serve as further reference.

Operational Definitions

Common mental disorders (CMDs): Cut scores and definition

Mentally well: A person who scores under 20 in Kessler-10 item questionnaire.

Mild mental disorder: A person who scores 20-24 in Kessler-10 item questionnaire.

Moderate mental disorder: A person who scores 25-29 in Kessler-10 item questionnaire.

Severe mental disorder: A person who scores 30 and over in Kessler-10 item questionnaire

A cancer patient: is a patient labeled to have cancer disease by an attending physician in oncology department

RESULT

A total of 179 patients were enrolled in this study to assess the prevalence and associated factors of common mental disorders in patients with Cancer. All of the selected subjects participated in the study. Baseline demographic and clinical characteristics are included in the analysis.

Socio-demographic characteristics of participants

Table1: Socio-demographic characteristics among cancer patients in Saint Paul Hospital Millennium Medical College (SPHMMC) in Addis Ababa, Ethiopia. (n=179)

Variables	Categories	Frequency	Percentage (%)
Sex	Male	63	35.2
	Female	116	64.8
Age	18-30	26	14.5
	31-50	81	45.3
	>50	72	40.2
Address	Urban	130	72.6

Current relationship status	Rural	49	27.4
	Single	18	10.1
	Married	131	73.2
	Separated	30	16.8
Highest level of education	Cannot read and write	14	7.8
	Can Read and write	31	17.3
	Elementary	30	16.8
	High school	56	31.3
Employment status	College and above	48	26.8
	Employed	117	65.4
Income	Unemployed	62	34.6
	0-499	11	10.8
	500-2499	4	3.9
	s> 2500	13	12.7
Source of Monthly Salary	Income	49	27.4
	Daily labor	20	11.2
	Pocket money from family	61	34.1
	Asking from people	11	6.1
Social support	Renting home	11	6.1
	Pension	5	2.8
	Others	22	12.3
	Family	125	69.8
Social support	Relative	17	9.5
	Neighbor	2	1.1
	Friends	1	0.6
	None	34	19

The demographic characteristics of the recipient subjects are shown in Table 1. Among the participants one hundred sixteen

were female. Eighty-one (45.3%) of the respondents age lies between 31 and 50. The majority of patients who participated in the study were from the urban areas (72.6%) and Married (73.2%). Most of the participants' social support is from their family members (69.8%). Education levels varied, approximately 52.1% of recipients had completed a high school education and above. More than half of the participant was employed (65.4%) and their source of income was monthly salary.

The Clinical Characteristics of the Patients

The clinical characteristics of the patients are shown in table 2.

More than one third of the participants reported that the onset of symptoms was 13 to 72 Months (38%) of onset of the illness and more than half of them began the first treatment within six months (52%) of the diagnosis. Among participants 91.1% of them had less than three-time relapse history and 57.5 % were treated as outpatient using chemotherapy as treatment option (60.9%). One hundred forty-seven (147) participants reported side effect (82.1%) and, 5.6% had family history of common mental disorders.

Table2: Clinical Characteristics among cancer patients in Saint Paul Hospital Millennium Medical College (SPHMMC) in Addis Ababa, Ethiopia. (n=179) (n=179).

Variables	Categories	Frequency	Percentage (%)
Duration from the onset of symptoms	<6 Month	34	19
	7 to 12 Month	64	35.8
	13 to 72 Month	68	38
	73 to 143 Month	9	5
	> 145 months	4	2.2
Duration from start of treatment	<6 Month	93	52
	7 to 12 Month	58	32.4
	13 to 72 Month	25	14
	>73	1	0.6
Number of recurrences/relapses	<3	163	91.1
	4 to 6	14	7.8
	>7	2	1.1
Admission	Yes	76	42.5
	No	103	57.5

Type of current treatment group.	Chemotherapy	109	60.9
	Surgery	4	2.2
	combination therapy	58	32.4
	None	8	4.5
Prominent side effects from the treatment	Yes	147	82.1
	No	32	17.9
Comorbid chronic medical illnesses		68	38
		111	62
Family history of common mental disorders		10	5.6
		169	94.4

Prevalence of Common Mental Disorder among Cancer Patient

All of the hundred seventy-nine participants were screened using kessler-10 (global measure of distress (CMD) scale (k10)) to screen comorbid CMD. Forty-nine (27.4%) of the participants scored 20 to 50 on K-10 and 130 (72.6) of them scored less than 20. The overall prevalence of common mental disorders among cancer patients was 27.4%.

Factors associated with CMDs among cancer patient

Table3: Factors associated with common mental disorders among cancer patients in Saint Paul Hospital Millennium Medical College (SPHMMC) in Addis Ababa, Ethiopia. (n=179).

Variables	Category	CMD N (%)		COR (95%CI)	AOR (95%CI)
		Yes	No		
Sex	Male	16 (32.7%)	47 (36.4%)	.856(.43,1.72)	
	Female	33 (67.3%)	82 (63.6%)	1	
Age	18-30	6(12.2%)	20(15.5%)	.64(.23,1.8)	
	31-50	20(40.8%)	60(46.5%)	.7(.34, 1.42)	

	>50	23(46.9%)	49(38.0%)	1
Address	Urban	31(63.3%)	99(76.7%)	.54(.27, 1.09)
	Rural	18(36.7%)	30(23.3%)	1
Current relations hip status	Single	4 (8.2%)	13(10.1%)	.67(.17, 2.59)
	Married	36(73.5%)	95(73.6%)	.88(.37, 2.11)
	Separated	9(18.4%)	21(16.3%)	
Level of education	College and above	7(14.3%)	41(31.8%)	1.3(.35, 4.78)
	High school	16(32.7%)	39(30.2%)	.72(.21, 2.48)
	Elementary	8(16.3%)	22(17.1%)	.65(.17, 2.55)
	Read and write	13(26.5%)	18(14.0%)	.31(.08, 1.19)
	Cannot write and write	5(10.2%)	9(7.0%)	1
Employment status	Employed	22(44.9%)	94(72.9%)	.3(.15, .6)**
	Unemployed	27(55.1%)	35(27.1%)	1
Income	0-499	24(49.0%)	41(31.8%)	1.92(.92, 3.98)
	500-2499	7(14.3%)	30(23.3%)	.76(.29, 2.03)
	> 2500	18(36.7%)	58(45.0%)	
Social support Family		37(75.5%)	87(67.4%)	1.62(.65, 4.0)
Relative		3(6.1%)	14(10.9%)	.82(.18, 3.67)
Neighbor		2(4.1%)	1 (.8%)	
Friends		7(14.3%)	27(20.9%)	
None		37(75.5%)	87(67.4%)	

Duration from the onset of symptoms	<6 Month	9(18.4%)	25(19.4%)	.36(.04, 2.95)
	7 to 12 Month	11(22.4%)	53(41.1%)	.21(.03, 1.64)
	13 to 72 Month	21(42.9%)	46(35.7%)	.45(.06, 3.39)
	73 to 143 Month	6(12.2%)	3(2.3%)	2(.18, 22.06)
	> 145 months	2(4.1%)	2(1.6%)	1
Admission	Yes	25(51.0%)	50(38.8%)	1.61(.83, 3.13)
	No	24(49.0%)	79(61.2%)	1
Type of current treatment group	Chemotherapy	27(55.1%)	82(63.6%)	99(.19, 5.19)
	Surgery	1(2.0%)	3(2.3%)	1(.06, 16)
	Combination therapy	19(38.8%)	38(29.5%)	1.46(.27, 7.93)
	None	2(4.1%)	6(4.7%)	1
Prominent side effects from the treatment	Yes	42(85.7%)	104(80.6%)	1.43(.57, 3.55)
	No	7(14.3%)	25(19.4%)	
chronic medical illnesses	Yes	25(51.0%)	43(33.3%)	2.11(1.08, 4.11)*
	No	24(49.0%)	86(66.7%)	1
Family history of common mental disorders	Yes	6(12.2%)	47(36.4%)	4.39(1.18, 16.31)
	No	43(87.8%)	82(63.6%)	1

DISCUSSION

Forty-nine (27.4%) of the participants scored 20 to 50 on K-10 and 130 (72.6) of them scored less than 20. The overall prevalence of common mental disorders among cancer patients was 27.4%. Comorbid chronic medical illnesses AOR: 2.43, 95%CI: (1.14, 5.21), family history of common mental disorder AOR=4.21, 95%CI: (1.05, 16.92) and employment AOR: 10.59, 95% CI: (2.43-14.19) were significantly associated with mental distress among cancer patient.

The United States spends billions of dollars annually on cancer research and studies indicate that psychological disorders are

common in patients with cancer and might have significant influence on overall morbidity and mortality and studies show it has varied prevalence. A study done in Germany shows Prevalence rates of mental disorders were 23.5% for the 4-weeks, 40% for the 12-months, and 56.5% for the lifetime periods but little work is done on prevalence of common mental disorders and its impacts in Ethiopian cancer patients.

In this study of the 179 participants, 130(72.6%) scored <20, 19(10.6%) scored 20-24, 17(9.5%) scored 25-29, 13(7.3%) scored ≥ 30 . Total of 49(27.4%) scored 20-50, who have common mental disorder on Kessler-10, and 130(72.6%) score under 20 are likely to be well on Kessler-10.

The study was done taking the definition of CMDs in cancer patients as a Kessler score of ≥ 20 making the overall prevalence of CMDs as comorbidity 27.4%. The prevalence of this study is comparable with the Population-based studies conducted in industrialized countries which reported a prevalence of CMD ranging from 7 to 30%, with a mean of 17% (12.5% in men and 20% in women). However this study is slightly lower than studies conducted in Latin America, Africa, and India, the reported prevalence exceeded 30% in the community and approximately 50% in the primary care setting.

It also is slightly smaller than studies conducted in Brazil, around 50% of patients seeking primary care services were identified as suspected CMD cases. A study done in Istanbul University shows somewhat higher incidence of psychological disorders in patients with cancer (30–60%), with approximately 29–43% fulfilling the diagnostic criteria for psychiatric disorders as compared to the result of this study (27.4%).

The current study may differ from other studies due to methodological differences; especially the sensitivity difference of the different screening tools and difference in clinical and other psychosocial factors, of the study participants could be responsible for the discrepancies of the findings. Some studies used Kessler Psychological Distress Scale (K10) where as other studies used Self-Reported Questionnaire (SRQ 20) for screening. The other factor might be cross-cultural difference since Ethiopian has strong psychosocial bond and spiritual affiliation that helps to reduce mental distress.

This study identified strong association between CMD and having family history of common mental disorders AOR=4.21, 95% CI : (1.05, 16.92). Patients with cancer were four times likely to develop common mental disorder if they have family history of CMD. This may be due to biological predisposition to mental illness as mental disorders run in families in general. A study done in Bangladesh on relationship between positive family history of mental illness and major psychiatric disorders shows that there is extensive evidence that major psychiatric disorders have strong relationship with positive family history of mental illness.

Having comorbid chronic medical illness (AOR: 2.43, 95%CI: (1.14, 5.21)) shows two and half times more likely to be distressing than other cancer patients without comorbidity. This may be due to the reasons that comorbid physical illness adds burden and impairs physically causing increased functional impairment and increased expense (economic burden). A study

done in Brazil on CMD and use of psychiatric drugs in cancer patients showed strong association between CMD in cancer patients and physical health condition. Another study done in Turkey on characteristics and risk factors for common psychiatric disorders in patients with cancer seeking help for mental health showed association between CMD in cancer patients and chronic medical illness.

Employment is negatively associated with CMD AOR: 0.27, 95% CI: (.12, .6) found to be strongly protective. This may be a reason that people with high income can visit health facility on time and can offer for their health needs. This finding is consistent with findings of other studies done on relationship of employment and mental health. Work is at the very core of contemporary life for most people, providing financial security, personal identity, and an opportunity to make a meaningful contribution to community life. A study done in Denmark, Aarhus University, on unemployment and mental disorders, an empirical analysis, showed that unemployment is strong risk factor for mental disorders.

Strength of the study and limitations of the study: In the study comorbid mental disorder was screened using a very sensitive (86%) and specific (83%) enough tool (Kessler-10) to assess symptoms of common mental disorders (19,20). This study was not without potential limitations: the study design has inherent weakness being a cross sectional study, has the limitation to test the temporal sequence of these events. Small number of sample size affects the generalizability of the results to all patients with Cancer. Kessler 10 lacks validation study in Ethiopia.

CONCLUSION and RECOMMENDATION

This study reveals that a substantial number of cancer patients had common mental disorders and extends the fact that CMD is a common comorbidity among adult cancer patients. This study clearly demonstrated significant association between CMD, and chronic medical illnesses, family history among adult cancer patients and employment.

The researcher should press on unfolding the findings to oncology unit and inform to link those with significant CMD to SPHAMMC psychiatry OPD. Practitioners and policy makers need to be sensitive to findings of this study. Active mental health screening of cancer patients for CMDs during their visit of oncology unit OPD and appropriate referrals to mental health professionals is recommended. Further analysis of factors included and large-scale Hospital and community-based studies are also recommended. Standard validation of Kessler-10 in Ethiopia is mandatory.

ABBREVIATIONS

ASCO- American Society of Clinical Oncology

CBT- Cognitive Behavioral Therapy

CMD- Common Mental Disorders

CANSA- Cancer Association of South Africa

Kessler -10- Kessler Psychological Distress Scale (k10)

LLMIC- Low- & Lower-Middle Income Countries

MH-OAT- Mental Health Outcomes Assessment training

MPAC- Memorial Pain Assessment Card

OPD- Out Patient Department

AOR- Adjusted Odds Ratio

SPHMMC- Saint Paul Millennium Medical College

WHO- World Health Organization

DECLARATIONS

Ethics approval and consent to participate

Ethical clearance and a letter of support were obtained from SPHMMC, research ethical review committee before the data collection. After final clearance and approval, the letter was submitted to SPHMMC Psychiatry department Office. Objective and use of the interview was explained to the respondents and written consent was obtained.

It was explained to the participants that they have the full right not to participate in the study or if they are not willing to continue their participation at any stage of the study. To ensure confidentiality of information, participants name was not used during data collection and this was clearly explained to participants of the study. The questionnaires and others tools were coded to exclude showing names; no references were made in oral or written reports that could link participants to the research. No conflict of interest was taken in to consideration while doing the research. Appropriate treatment and follow up will be initiated for the study subjects that are found depressed or suicidal.

Authors' contributions

HD: designed research, conducted research, wrote paper, analyzed data and edited paper. SW, GM & M T advised the research. MA edited paper and prepare the manuscript for submission. All authors read and approved the final manuscript.

Acknowledgements

I would like to express by deepest gratitude to Dr. Muluken Tesfaye and Dr. Girma Mamo for the constructive guidance and advice on the process of undertaking this research.

I also want to thank SPHMMC Department of Psychiatry. Last but not least, am deeply thankful for oncology unit nurses who helped me collecting the data.

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