Depression and anxiety prevalence and correlations among cancer patients at Tikur Anbesa Hospital in Addis Ababa, Ethiopia, 2018: Cross-sectional study

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Background: People with cancer, as well as their family members and loved ones, frequently experience distress. Distress can sometimes escalate from a normal level to one that interferes with therapy, makes it difficult for you to function or cope, and has an impact on many aspects of life. About 1 in 4 people with cancer experience major or clinical depression, and anxiety is also a common problem for cancer patients. Anxiety and depression are the most familiar mental illnesses among cancer patients.

Objectives: The objectives of this study was to assess the prevalence and correlates of depression and anxiety among cancer patients attending treatment at Tikur Anbessa specialized hospital.

Methods: Hospital based cross-sectional study was conducted from 15 April to 15 May 2018. This study was conducted at Tikur Anbessa Specialized Hospital is in Addis Ababa, capital city of Ethiopia. A pretested interviewer administered questionnaire was used to collect data by trained psychiatry nurses. The Hospital Anxiety and Depression Scale was used to collect an outcome variable (the presence of anxiety and depression).

Result: According to the study, anxiety and depression were present in 54.6 percent and 40.4 percent of the Tikur Anbessa Specialized Hospital’s cancer patients, respectively. Factors that were strongly associated with depression were being a woman, having less education, bleeding right now, being younger (30 to 39 years old), and suffering discomfort. With AOR of 2.18 (1.38–3.44), 1.73 (1.10–2.85), 2.57 (1.61–4.11), 2.28 (1.12–4.63), 1.64 (1.00–2.69), respectively with 95% CI. On the other hand factors significantly associated with anxiety among cancer patients attending treatment at Tikur Anbessa specialized hospital were marital status with AOR 2.10 (1.01–4.02), feeling discomfort 2.06 (1.00–3.03), and bleeding 3.52 (2.31–5.64).

Conclusion: Guidelines for screening and treating depression and anxiety in cancer patients should be developed by psychiatry departments in collaboration with oncology department. Oncology and psychiatry...
department better work and capacitate link to help for good of patients. To enhance and widen the current findings, additional research on depression and anxiety risk factors should be done.

KEYWORDS

depression, anxiety, cancer, patients, Addis Ababa, Ethiopia

Introduction

People with cancer, as well as their family members and loved ones, frequently experience distress. Distress can sometimes escalate from a normal level to one that interferes with therapy, makes it difficult for you to function or cope, and has an impact on many aspects of life (1). About 1 in 4 people with cancer experience major or clinical depression, and anxiety is also a common problem for cancer patients (2). Anxiety and depression are the most familiar mental illnesses among cancer patients (3).

According to a cross-sectional study conducted in Pakistan, 66 percent of cancer patients suffer from depression and anxiety (4). In Thailand, researchers discovered that having a higher pain score, receiving less therapy, getting older, and being female were all linked to a higher likelihood of depression (5).

A prospective, multicenter cohort done in Spanish hospital reported that prevalence of anxiety and depression was 49.8 and 36.6%, respectively. Women and younger individuals were more anxious and depressed than men and seniors (6).

In a study conducted in Nigeria, depression was found to be prevalent in 40.3 percent of the population; not being married, having poor social support, and having advanced cancer stage were all found to be significantly associated with depression (7). According to a study done in Greece, women with low levels of education are more likely to continue to feel depressed and anxious (8). According to an American meta-analysis study, depressed patients were less likely than non-depressed patients to take their medication as prescribed (9).

According to one study, the occurrence of depression in chronic disease patients was linked to a poor treatment outcome (10). The high cost and domination of psychological distress among cancer patients, as well as the impairment it causes and the diagnostic and therapeutic uncertainties surrounding it, make it a priority for research. The goal of this study was to determine the prevalence of depression and anxiety in cancer patients, as well as the associated factors associated with anxiety and depression which escort cancer patients to suffer more, resulting in poor quality of life and premature death.

Methods and materials

Study design and period

Hospital based cross-sectional study was conducted from 15 April to 15 May 2018.

Study setting

This study was conducted at Tikur Anbessa Specialized Hospital is in Addis Ababa, capital city of Ethiopia. This Hospital is giving health services of medical management, surgical intervention, obstetric and gynecological management, pediatric and other essential services for different population, the Hospital has oncology department which serves for patients from different regions of the country.

Source population

All cancer patients attending oncology clinic at Tikur Anbessa Specialized Hospital.

Study population

All cancer patients attending oncology clinic at Tikur Anbessa Specialized Hospital during study period.

Inclusion and exclusion criteria

Inclusion criteria

The sample includes participant who fulfills age 18 and above, tested positive for cancer and currently on treatment at Tikur Anbessa Specialized Hospital.

Exclusion criteria

Those who are unable to communicate due to illness.
TABLE 1 Frequency distributions of socio-demographic characteristics of the respondents at TASH in Addis Ababa, Ethiopia, 2018.

| Variables             | Frequency | Percentage (%) |
|-----------------------|-----------|----------------|
| Age group of the respondents |           |                |
| <30                   | 46        | 10.9           |
| 30–39                 | 111       | 26.2           |
| 40–49                 | 114       | 27.0           |
| 50–59                 | 82        | 19.4           |
| 60 and above          | 70        |                |
| Sex                   |           |                |
| Male                  | 149       | 35.2           |
| Female                | 274       | 64.8           |
| Religion              |           |                |
| Orthodox              | 288       | 68.1           |
| Muslim                | 75        | 17.7           |
| Protestant            | 59        | 13.9           |
| Other                 | 1         | 0.2            |
| Marital status        |           |                |
| Single                | 94        | 22.2           |
| Married               | 230       | 54.4           |
| Separated             | 27        | 6.4            |
| Divorced              | 23        | 5.4            |
| Widowed               | 49        | 11.6           |
| Occupational status   |           |                |
| Government employed   | 86        | 20.3           |
| Merchants             | 33        | 7.8            |
| Farmer                | 130       | 27.7           |
| Student               | 23        | 5.4            |
| Daily laborer         | 42        | 7.6            |
| House wife            | 80        | 18.9           |
| Job less              | 29        | 2.1            |
| Educational status    |           |                |
| Not formally educated | 176       | 41.6           |
| Read and write        | 6         | 1.4            |
| Primary school        | 68        | 16.1           |
| Secondary school      | 108       | 25.5           |
| College/university    | 65        | 15.4           |
| Ethnicity             |           |                |
| Amhara                | 182       | 43.0           |
| Oromo                 | 113       | 26.7           |
| Tigre                 | 44        | 10.4           |
| Gurage                | 64        | 15.1           |
| Other*                | 20        | 4.7            |
| Living status         |           |                |
| With family           | 325       | 74.9           |
| Alone                 | 98        | 20.8           |

Sample size determination and sampling procedures

Sample size determination

The maximum number of sample required for this study was determined by using single population proportion formula considering the following assumptions:

\[ n = \frac{(Z\alpha)^2 \cdot P(1-P)}{d^2} \]

\( n \) = minimum sample size required for the study.
\( Z \) = standard normal distribution with confidence interval of 95%, \( Z = 1.96 \).
\( d \) = Absolute precision or tolerable margin of error. \( d = 0.05 \).
\( P \) = is the anticipated population proportion.

Since no similar study conducted previously in Ethiopia, we use the prevalence of anxiety and depression disorder among cancer patients 50%. Therefore, 50% was used to anticipate the proportion of the population of cancer patients who experience anxiety and depression disorder.

Therefore \( n = \frac{0.5(1-0.5)}{0.05^2} = 384 \)

Adding 10% non-response rate, the final sample size was 423.

Sampling technique

Systematic random sampling technique was used to select participants.

Operational definitions

1. **A possible presence of anxiety** in this study is defined as a cut-off point \( \geq 8 \) (>8) during HADS A-7 Screening.
2. **A possible presence of depression** in this study is defined as a cut-off point \( \geq 8 \) (>8) during HADS D-7 Screening.

Data quality control issues

Ensured by conducting the pretest among 5% sample. Training was given for the data collectors on the data collection tool and sampling techniques and procedures. Supervision was held regularly and necessary feedback was offered to data collectors.

Data collection

A pretested interviewer administered questionnaire was used to collect data by trained psychiatry nurses. The data collection equipment was made up of different parts. The
first section contains socio-demographic information (age, education, occupation, marital status and others). The Hospital Anxiety and Depression Scale was used to collect an outcome variable (the presence of anxiety and depression) (HADS). The HADS is a 14-item questionnaire that is often used to screen for anxiety and depressive symptoms. For anxiety and depression, the 14-item scale was divided into two 7-item subscales. It was validated in Ethiopia and found to have an internal consistency of 0.78 for anxiety subscales, 0.76 for depression subscales, and 0.87 for the entire scale. A cutoff score of more than or equal to 8 is used on the measures for anxiety and depression (11).

Data processing and analysis
The data was entered into Epi Info version 7 and then exported to SPSS version 20 for analysis. The presence of statistically significant connections between the independent and dependent variables was determined using bivariate and multivariable analysis. Multivariable analyses with a P-value of 0.05 were considered statistically significant.

Ethical consideration
Ethical clearance was obtained from Ethical Review Board of University of Gondar and Amanuel mental specialized hospital.

Consent was obtained from each study participant after the study was explained to them in detail by the data collectors. They also informed that they could quit at any time.

Result
The total number of participants was 423, with a 100 percent response rate. Females made up 63.8 percent of the participants, while males made up 35 percent. The participants' ages range from 30 to 80 years old, with a mean of 44.7 years and a standard deviation of 13.6 years. 54.4 percent of the total participants in the study were married, while 22.2 percent were single. Table 1 shows the socio-demographic characteristics of the study participants.

Prevalence of depression
To determine presence of depression and anxiety test scored done, a value of 0 to 3 is assigned for each answer and then total score compared. Final participants were asked to rate how they have been feeling for the last 2 weeks. The minimum and maximum score were 0 to 21.

Hospital anxiety depression scale (HADS) were interpreted for participants who took the test and got a total score of 8 or higher were indicative of depression, accordingly the study showed the prevalence of depressed cancer patients 54.6% (Figure 1).
TABLE 2 Bivariate and Multivariate logistic analysis result of depression study subjects among adult patients attending Oncology clinic at Tikur Anbessa Hospital, Addis Ababa, Ethiopia, 2018.

| Variables                  | Depression | Crude OR (95% CI) | Adjusted OR (95% CI) |
|----------------------------|------------|------------------|----------------------|
|                            | Yes (%)    | No (%)           |                      |
| Gender                     |            |                  |                      |
| Male                       | 66 (28.6)  | 83 (34.2)        | 1.00                 |
| Female                     | 165 (71.4) | 109 (65.8)       | 2.41 (1.49–3.89)*    |
| Age groups                 |            |                  |                      |
| <30                        | 22 (9.5)   | 24 (12.5)        | 3.15 (1.20–8.32)*    |
| 30–39                      | 52 (22.5)  | 59 (30.7)        | 3.74 (1.29–5.84)*    |
| 40–49                      | 63 (27.3)  | 51 (26.6)        | 1.60 (0.81–3.16)     |
| 50–59                      | 56 (24.2)  | 26 (13.5)        | 0.74 (0.37–1.50)     |
| 60+                        | 38 (16.5)  | 32 (16.7)        | 1.00                 |
| Marital status             |            |                  |                      |
| Single                     | 49 (21.2)  | 45 (23.4)        | 0.51 (0.24–1.08)     |
| Married                    | 125 (54.1) | 105 (54.7)       | 0.84 (0.46–1.51)     |
| Divorced                   | 57 (24.7)  | 42 (21.9)        | 1.00                 |
| Educational status         |            |                  |                      |
| Not formally educated      | 102 (44.2) | 80 (41.7)        | 1.70 (1.03–2.80)*    |
| Literate                   | 129 (55.8) | 112 (58.3)       | 1.00                 |
| Living status              |            |                  |                      |
| With family                | 175 (75.8) | 142 (74.0)       | 0.83 (0.46–1.49)     |
| Alone and other            | 56 (24.2)  | 50 (26.0)        | 1.00                 |
| Bleeding for current illness|            |                  |                      |
| Yes                        | 91 (39.4)  | 35 (18.2)        | 2.92 (1.81–4.70)     |
| No                         | 140 (60.6) | 157 (81.8)       | 2.57 (1.61–4.11)     |
| Feeling pain               |            |                  |                      |
| Yes                        | 195 (84.4) | 137 (71.4)       | 2.17 (1.32–3.59)     |
| No                         | 36 (15.6)  | 55 (28.6)        | 1.64 (1.00–2.69)     |
| Limitations of general job activity| | | | |
| Yes                        | 212 (91.8) | 170 (89.0)       | 1.76 (0.76–4.10)     |
| No                         | 19 (8.2)   | 21 (11.0)        | 1.80 (0.78–4.15)     |
| Swelling on a body         |            |                  |                      |
| Yes                        | 158 (68.4) | 117 (60.9)       | 1.13 (0.70–1.85)     |
| No                         | 73 (31.6)  | 75 (39.1)        | 1.13 (0.70–1.85)     |
| Alcohol use                |            |                  |                      |
| Yes                        | 15 (6.5)   | 12 (6.2)         | 0.91 (0.39–2.10)     |
| No                         | 216 (93.5) | 180 (93.8)       | 0.91 (0.39–2.10)     |
| Khat use                   |            |                  |                      |
| Yes                        | 15 (6.5)   | 14 (7.3)         | 1.17 (0.52–2.62)     |
| No                         | 216 (93.5) | 178 (92.7)       | 1.13 (0.53–2.41)     |

(n = 423).

*Shows p < 0.05, and bold values shows significant association.

Prevalence of anxiety

Hospital anxiety depression scale (HADS) were interpreted for participants who took the test and got a total score of 8 or higher were indicative of anxiety, with cut-off point 8, the prevalence of anxiety among cancer patients was 40.4% (Figure 2).

Factors associated with depression

According to the result of this study; Gender, educational status, current bleeding, age groups (30 to 39) years, and feeling pain had association before and after adjustment as illustrated in Table 2. With AOR of 2.18 (1.38–3.44), 1.73 (1.10–2.85), 2.57 (1.61–4.11), 2.28 (1.12–4.63), 1.64 (1.00–2.69), respectively show significant association with 95% CI. Females were 2.18 times
TABLE 3  Bivariate and Multivariate logistic analysis result of Anxiety study subjects among adults patients attending Oncology clinic at Tikur Anbessa Hospital, Addis Ababa, Ethiopia, 2018.

| Variables                        | Anxiety | Crud OR 95% CI | Adjusted OR |
|----------------------------------|---------|----------------|-------------|
|                                  | Yes (%) | No (%)         |             |
|                                  |         |                |             |
| Marital status                   |         |                |             |
| Married                          | 89 (52.0) | 141 (56.0) | 1.00         | 1.00 |
| Single                           | 58 (33.9) | 36 (14.3) | 2.0 (1.0–4.4)* | 2.10 (1.01–4.02)* |
| Divorced                         | 24 (14.0) | 75 (29.8) | 0.51 (0.27–0.97)* | 0.45 (0.26–1.81) |
| Educational status               |         |                |             |
| Not formally educated            | 57 (33.3) | 125 (49.6) | 1.72 (1.03–2.88)* | 1.72 (1.10–1.64) |
| Literate                         | 114 (66.7) | 127 (50.4) | 1.00         | 1.00 |
| Bleeding for current illness     |         |                |             |
| Yes                              | 80 (46.8) | 46 (18.3) | 3.51 (2.21–5.53)* | 3.52 (2.31–5.64)* |
| No                               | 91 (53.2) | 206 (81.7) | 1.00         | 1.00 |
| Feeling pain                     |         |                |             |
| Yes                              | 162 (94.7) | 170 (67.5) | 1.5 (1.00–3.09)* | 2.06 (1.00–3.03)* |
| No                               | 9 (5.3) | 82 (32.5) | 1.00         | 1.00 |
| Limitations of general job activity |   |                |             |
| Yes                              | 212 (91.8) | 170 (69.0) | 1.76 (0.76–4.10) | 1.80 (0.78–4.15) |
| No                               | 19 (8.2) | 21 (11.0) | 1.00         | 1.00 |
| Swelling on cancer site          |         |                |             |
| Yes                              | 158 (68.4) | 117 (40.9) | 1.13 (0.70–1.85) | 1.13 (0.70–1.85) |
| No                               | 73 (31.6) | 75 (39.1) | 1.00         | 1.00 |
| Alcohol use                      |         |                |             |
| Yes                              | 15 (6.5) | 12 (6.2) | 0.91 (0.39–2.10) | 0.91 (0.39–2.10) |
| No                               | 216 (93.5) | 180 (93.8) | 1.00         | 1.00 |
| Khatuse                          |         |                |             |
| Yes                              | 15 (6.5) | 14 (7.3) | 1.17 (0.52–2.62) | 1.13 (0.53–2.41) |
| No                               | 216 (93.5) | 178 (92.7) | 1.00         | 1.00 |

(n = 423).

*Shows p < 0.05, and also bold values shows significant association.

more likely than males to acquire depression, as indicated by the adjusted odd ratio, and persons who experienced bleeding from a cancer site were 2.18 times more likely to develop depression. When there was bleeding from a cancer site, patients were 2.57 times more likely to develop depression. In comparison to those aged 60 and up, those aged 30 to 39 were 2.28 times more likely to acquire depression. Patients with pain were 1.64 times more likely to become depressed than those without pain. Participants who couldn’t read or write were 1.73 times more likely to acquire depression than those who had a diploma or higher.

Factors associated with anxiety

According to the result of this study marital status, bleeding, feeling pain show association before and after adjustment as shown in Table 3.

Marital status with AOR 2.10 (1.01–4.02), feeling discomfort 2.06 (1.00–3.03), and bleeding now 3.52 (2.31–5.64) were found to be significantly linked with 95 percent CI.

As seen in the corrected odd ratio, single people were 2 times more likely to experience anxiety than married people and people who suffered pain. An individual who had no pain was 2 times more likely to acquire anxiety, and an individual who had bleeding from a cancer site was 3.52 times more likely to develop anxiety than an individual who had no bleeding from a cancer site.

Discussions

The goal of this study was to find out how common anxiety and depression are among cancer patients. Using the hospital anxiety depression scale (HADS), we discovered an association between depression and common socio demographic variables, as well as an association between anxiety and socio demographic variables (HADS).

An overall prevalence of anxiety and depression was identified, with 231 (54.6%) individuals suffering from depression and 171 (40.4%) suffering from anxiety. This study’s prevalence of depression (54.6%) was lower than that of a study
Conclusions

Female cancer patients had a higher prevalence of depression and anxiety than male cancer patients, implying that depression and anxiety are more common in females with cancer. Being female, having a low educational status, having current bleeding, being in a younger age group, and feeling pain were all associated with a higher risk of depression, whereas being single, bleeding, and currently feeling pain were all associated with a higher risk of anxiety among cancer patients treated at Addis Ababa Tikur Anbessa Hospital in Ethiopia, 2018. Guidelines for screening and treating depression and anxiety in cancer patients should be developed by psychiatry departments in collaboration with oncology department. Oncology and psychiatry department better work and capacitate link to help for good of patients. To enhance and widen the current findings, additional research on depression and anxiety risk factors should be done.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by Ethical Review Board of University of Gondar and Amanuel mental specialized hospital. The patients/participants provided their written informed consent to participate in this study.

Author contributions

YA: manuscript writing, analyzing, and reporting. MG and TF: report writing, analyzing, result, and discussion writing. AG: analyzing, report writing, and conclusion. TA: manuscript writing, editing result, and discussion. All authors contributed to the article and approved the submitted version.

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Some items need long term memory so the study is prone to recall bias.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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