Title
Gender Differences in the Occurrence and Severity of Depression, Anxiety, and Attentional Fatigue in Oncology Patients Receiving Chemotherapy

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Gender Differences in the Occurrence and Severity of Depression, Anxiety, and Attentional Fatigue in Oncology Patients Receiving Chemotherapy

by

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THESIS

Submitted in partial satisfaction of the requirements for the degree of

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in

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ABSTRACT

Findings from population-based studies suggest that women report higher occurrence rates of psychological distress. However, limited information exists on gender differences in depressive symptoms, anxiety, and decrements in attentional function in oncology patients. Given the paucity of research and the inconsistent findings, the purposes of this study, in a sample of outpatients receiving chemotherapy (CTX, n = 926), were to evaluate for gender differences in demographic and clinical characteristics, as well as in occurrence rates for and severity ratings of depressive symptoms, anxiety, and decrements in attentional function. Patients completed self-report instruments and medical records were reviewed for disease and treatment information. Across these psychological symptoms, female patients had higher occurrence rates for clinically meaningful levels of depressive symptoms, anxiety, and decrements in attentional function. In addition, females reported higher severity scores for all three symptoms. Given the high prevalence rates for clinically meaningful levels of all three symptoms in both men and women, clinicians need to perform more detailed assessments of these symptoms. Future studies will need to evaluate the underlying mechanisms that contribute to the gender differences in depressive symptoms, anxiety, and decrements in attentional function.

Key words: cancer; depression; anxiety; attentional fatigue; chemotherapy; gender differences
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INTRODUCTION

The Distress Guideline from the National Comprehensive Cancer Network noted that distress encompasses practical, family, emotional, physical, and spiritual problems.\(^1\) In oncology patients undergoing chemotherapy (CTX), psychological distress can manifest itself as anxiety, depressive symptoms, and changes in attentional function. In fact, in a recent meta-analysis that evaluated depression and anxiety in patients with solid tumor and hematologic cancers,\(^2\) the overall prevalence of depressive symptoms ranged from 1.0% to 77.5%. The pooled prevalence rates for subsyndromal depression and depression were 16.3% and 18.5%, respectively. In addition, 14.9% of patients met the criteria for a major depressive disorder. In terms of anxiety, the overall prevalence rate was 10.3%. However, in other studies, the prevalence of anxiety in oncology patients receiving CTX ranged from 19.0%\(^3\) to 91%.\(^4\) Finally, impairments in attention, memory, processing speed, and executive function were reported in 13%\(^5\) to 33%\(^6,7\) patients undergoing CTX.

Gender is one factor that may contribute to the wide variations in the prevalence rates for depressive symptoms, anxiety, and changes in attentional function in oncology patients. In fact, findings from population-based studies suggest that while 9% to 26% of females will experience depression during their lifetime, the percentages in males are much lower (i.e., 5% to 12%).\(^8\) In terms of anxiety, population estimates range between 22% and 33% for females and between 13% and 22% for males.\(^9\) No population-based studies of gender differences in attentional function were identified. While population-based studies have identified gender differences in the occurrence rates for depressive symptoms and anxiety, little is known about gender differences in the occurrence and severity of these two symptoms, in addition to attentional fatigue, in oncology patients receiving CTX.

The occurrence rates for depressive symptoms are higher in cancer patients than in the general population.\(^10\) However, findings regarding gender differences in this symptom are
inconsistent. Some studies found no gender differences in occurrence rates,\textsuperscript{11} while other studies reported that female patients had higher rates of depressive symptoms.\textsuperscript{12} In terms of severity, while some studies found no differences between genders,\textsuperscript{13} others found that female patients reported more severe levels of depression.\textsuperscript{14, 15} These inconsistent findings may be related to the methods used to assess depressive symptoms (e.g., self-report versus clinical interview) and the timing of the assessments in relationship to the disease trajectory (e.g., at the time of the cancer diagnosis, during active treatment, during survivorship).

Similar to depressive symptoms, findings regarding gender differences in anxiety are inconsistent. While some studies reported no gender differences in the occurrence of anxiety,\textsuperscript{16} others reported that females experienced higher occurrence rates.\textsuperscript{17, 18} In terms of severity, in a longitudinal study that evaluated for anxiety after the initiation of CTX, females reported higher severity scores than males.\textsuperscript{19} Similar to the literature on depression, these inconsistent findings may be related to the methods used to assess anxiety and the timing of the assessments in relationship to the disease trajectory.

Recent estimates suggest that between 30\% and 75\% of patients report changes in cognitive function during or following CTX.\textsuperscript{20, 21} However, no studies were found that evaluated for gender differences in cognitive function in patients receiving CTX. In one study by our research team, that compared patients with breast and prostate cancer prior to initiation of RT, females were more likely than males to report decrements in attentional function.

Given the paucity of research on gender differences in the occurrence and severity of depression, anxiety, and attentional fatigue in patients receiving CTX, the purposes of this study, in a sample of oncology outpatients receiving CTX (n=940), were to evaluate for gender differences in demographic and clinical characteristics, as well as in occurrence rates for and severity ratings of depressive symptoms, anxiety, and decrements in attentional function.
PATIENTS AND METHODS

Patients and Settings

This study is part of an ongoing, longitudinal study of the symptom experience of oncology outpatients receiving CTX. Eligible patients were ≥18 years of age; had a diagnosis of breast, gastrointestinal (GI), gynecological (GYN), or lung cancer; had received CTX within the preceding four weeks; were scheduled to receive at least two additional cycles of CTX; were able to read, write, and understand English; and gave written informed consent. Patients were recruited from two Comprehensive Cancer Centers, one Veteran’s Affairs hospital, and four community-based oncology programs. A total of 1528 patients were approached and 926 consented to participate (60.6% response rate). The major reason for refusal was being overwhelmed with their cancer treatment.

Instruments

A demographic questionnaire obtained information on age, gender, ethnicity, marital status, living arrangements, education, employment status, and income. Alcohol use was evaluated using the Alcohol Use Dependency Identification Test (AUDIT).\(^{23}\)

The Karnofsky Performance Status (KPS) scale is widely used to evaluate functional status in patients with cancer and has well-established validity and reliability.\(^{24}\) Patients rated their functional status using the KPS scale that ranged from 30 (I feel severely disabled and need to be hospitalized) to 100 (I feel normal; I have no complaints or symptoms).\(^{24,25}\)

The Self-Administered Comorbidity Questionnaire (SCQ) is a short and easily understood instrument that was developed to measure comorbidity in clinical and health service research settings.\(^{26}\) The questionnaire consists of 13 common medical conditions that were simplified into language that could be understood without any prior medical knowledge. Patients were asked to indicate if they had the condition; if they received treatment for it; and did it limit their activities. For each condition, a patient can receive a maximum of 3 points. The total SCQ
The Center for Epidemiological Studies-Depression scale (CES-D) consists of 20 items selected to represent the major symptoms in the clinical syndrome of depression. A total score can range from 0 to 60, with scores of ≥16 indicating the need for individuals to seek clinical evaluation for major depression. The CES-D has four subscale scores (i.e., somatic, depressed affect, positive affect, interpersonal problems). The CES-D has well-established validity and reliability. In the current study, the Cronbach’s alpha for the CES-D total score was 0.89.

The Spielberger State-Trait Anxiety Inventories (STAI-T and STAI-S) consist of 20 items each that are rated from 1 to 4. The scores for each scale are summed and can range from 20 to 80. Cutoff scores of ≥31.8 and ≥32.2 indicate high levels of trait and state anxiety, respectively. The STAI-S and STAI-T inventories have well-established validity and reliability. In the current study, the Cronbach’s alphas for the STAI-T and STAI-S scores were 0.92 and 0.96, respectively.

The Attentional Function Index (AFI) consists of 16 items designed to measure attentional function. A higher mean score on a 0 to 10 scale indicates greater capacity to direct attention. Scores are grouped into categories of attentional function (i.e., <5.0 low function, 5.0 to 7.5 moderate function, >7.5 high function). In addition, the AFI has three subscales (i.e., effective action, attentional lapses, interpersonal effectiveness). The AFI has well established reliability and validity. In this study, the Cronbach’s alpha for the total AFI score was 0.93.

**Study Procedures**

The study was approved by the Committee on Human Research at the University of California, San Francisco and by the Institutional Review Board at each of the study sites. Eligible patients were approached by a research staff member in the infusion unit to discuss participation in the study. Written informed consent was obtained from all patients. Depending on the length of their CTX cycles, patients completed questionnaires in their homes, a total of
six times over two cycles of CTX (i.e., prior to CTX administration (i.e., recovery from previous CTX cycle), approximately 1 week after CTX administration (i.e., acute symptoms), approximately 2 weeks after CTX administration (i.e., potential nadir)). For this analysis, symptom questionnaires from the enrollment assessment, that asked patients to report on their symptom experience for the week prior to the administration of the next cycle of CTX, were analyzed. Medical records were reviewed for disease and treatment information.

**Data Analysis**

Data were analyzed using SPSS version 22 (IBM, Armonk, NY). Descriptive statistics and frequency distributions were calculated for demographic and clinical characteristics. Gender differences in demographic, clinical, and symptom characteristics were evaluated using independent sample t-tests, Chi square analyses, or Kruskal-Wallis tests with Bonferroni corrected post hoc contrasts. A p-value of < .05 was considered statistically significant. All calculations used actual values. Adjustments were not made for missing data. Therefore, the calculations for each of these analyses were dependent on the largest set of complete data between groups.
RESULTS

Gender Differences in Demographic Characteristics

As shown in Table 1, no gender differences were found in ethnicity, education, marital status, living arrangements, employment status, income, and responsibilities regarding the care of an adult. However, compared to male patients, females were significantly younger and were more likely to have child care responsibilities.

Gender Differences in Clinical Characteristics

As shown in Table 1, no gender differences were found in body mass index (BMI) or exercise regimen. However, compared to male patients, females had significantly lower KPS scores, lower AUDIT scores, were more likely to have been diagnosed with cancer longer, and were more likely to have a higher number of previous cancer treatments. A significantly higher percentage of females had breast cancer and reported higher occurrence rates for anemia and osteoarthritis. A higher percentage of males reported lung disease.

Gender Differences in Occurrence and Severity of Depressive Symptoms

As illustrated in Figure 1, compared to male patients (19.1%), a significantly higher percentage of females (33.7%) had CES-D scores above the clinically meaningful cutoff score of $>16$. In addition, compared to male patients, females had significantly higher somatic and depressed affect subscale scores, as well as total CES-D scores (Table 2).

Gender Differences in Occurrence and Severity of Anxiety

As illustrated in Figure 2, compared to male patients (45.9%), a significantly higher percentage of females (57.5%) had STAI-T scores above the clinically meaningful cutoff score $>31.8$. Moreover, compared to male patients (36.6%), a significantly higher percentage of females (45.1%) had STAI-S scores above the clinically meaningful cutoff score $>32.2$. As shown in Table 2, compared to male patients, females had significantly higher trait and state anxiety scores.

Gender Differences in Occurrence and Severity of Attentional Function
As illustrated in Figure 3, significant differences were found in the distribution of males and females across the AFI categories. Post hoc contrasts demonstrated that when the high attentional function (>7.5) and the moderate attentional functional (5.0 to 7.5) groups were compared, a higher percentage of females were in the moderate group. In addition, when the high attentional function (>7.5) and the low attentional functional (<5.0) groups were compared, a higher percentage of females were in the low group. In terms of AFI scores, female patients had significantly lower effective action and attentional lapses subscale scores, as well as total AFI scores (Table 2).
DISCUSSION

This study is the first to evaluate for gender differences in the occurrence and severity of depressive symptoms, anxiety, and attentional fatigue in the same sample of oncology patients receiving CTX. For all three symptoms, female patients had higher occurrence rates and higher severity ratings than males.

Depression

In the current study, the occurrence rate for clinically meaningful levels of depressive symptoms in men was consistent with the 18.5% identified in a recent meta-analysis. However and consistent with previous reports, females in this study had almost twice the occurrence rate for clinically meaningful levels of depressive symptoms.

While female patients reported higher total mean CES-D scores than males, neither group had CES-D scores above the clinically meaningful cutoff. Of note, and consistent with previous reports that evaluated women with breast and GYN cancer, the mean CES-D score for the females in the current study suggests that they were experiencing subsyndromal levels of depressive symptoms.

In terms of the CES-D subscale scores, female patients reported higher somatic and depressed affect subscale scores. The somatic subscale of the CES-D evaluates somatic manifestations of depression, including feelings that extra effort is required, decreased appetite, restless sleep, and difficulty getting going. The depressed affect subscale reflects an evaluation of feelings of unhappiness, including feeling depressed, blue, or lonely. In most studies of oncology patients, the subscale scores for the CES-D are not reported. However, in a study that evaluated for gender bias in the measurement properties of the CES-D in oncology patients, except for the positive affect subscale, the other subscale scores for men and women were comparable to scores reported in the current study. In the previous study, the positive affect subscale scores were 3.39 for the female patients and 3.29 for the males. The reasons for the higher positive affect scores for women and men in the current study are not readily
apparent because the demographic and clinical characteristics of the patients in the two studies were relatively similar.

One potential explanation for the gender differences in occurrence rates of and severity ratings for depressive symptoms may be related to biased responses to two items on the CES-D. Findings from a previous study suggest that male patients respond differently when asked to rate the CES-D items “crying spells” or “talked less.” In addition, in the current study, female patients were diagnosed with cancer longer and had received a higher number of cancer treatments, which may contribute to feelings of hopelessness and depression.

**Anxiety**

Compared to the 10.3% occurrence rate for anxiety reported in a recent meta-analysis,² the occurrence rates for clinically meaningful levels of trait anxiety ranged from 45.9% in male patients and 57.5% in females. In addition, while female patients reported higher trait anxiety scores than males, both groups had mean trait anxiety scores above the clinically meaningful cutoff score. A similar pattern was found for gender differences in state anxiety. While no studies were identified that reported on gender differences in trait and state anxiety scores, the severity of these two scores in the current study are similar to those reported by patients at the initiation of RT.⁴¹ One potential explanation for gender differences in anxiety in the current study is that a higher percentage of female patients reported child care responsibilities. This hypothesis is consistent with a recent study that found that women with underage children tended to report more anxiety than men.⁴² Taken together, these findings suggest that both female and male oncology patients experience anxiety during CTX that warrants ongoing assessments and appropriate interventions.

**Attentional Fatigue**

Changes in cognitive function are a significant problem for patients receiving CTX.⁴³,⁴⁴ Because the majority of the studies on changes in cognitive function were done with breast cancer patients, little is known about gender differences in this symptom. In the current study,
the AFI was used to categorize patients into one of three groups (i.e., low, moderate, and high levels of attentional function). A higher percentage of women were more likely to have AFI scores that were associated with low or moderate levels of attentional function, as well as significantly lower AFI total scores. The overall findings regarding gender differences in both occurrence rates and severity scores are consistent with a previous report on differences in AFI scores between patients with breast and prostate cancer at the initiation of RT. Of note, the total AFI scores reported by each of the genders were similar across these two studies.

In terms of AFI subscale scores, the subscale scores for effective action and attentional lapses were lower in the female patients. The effective action subscale evaluates a person’s ability to carry out activities that require focused attention. The attentional lapses subscale evaluates an individual’s difficulties in directing attention in daily tasks. While the AFI subscales scores for each of the genders were relatively consistent between the current study and the RT study, the only gender difference identified in the RT study was that women reported lower effective action subscale scores at the initiation of RT. Taken together, the results from the current study suggest that while a relatively high percentage of both female (72.7%) and male (58.6%) experience moderate to low levels of attentional function, female patients are at higher risk for this symptom. Because the majority of the female patients in this study had breast and GYN cancer and the majority of the men had GI and lung cancer, and the CTX drugs used to treat these cancers differ, one potential explanation for the gender differences in attentional function may be related to the ability of various CTX drugs to cross the blood brain barrier. In addition, in the current study, female patients were more likely to report anemia which may contribute to CTX-induced impairments in cognitive function.

Limitations

Several limitations need to be acknowledged. While the overall sample size was large, the majority of patients were white and female. In addition, as noted above, the majority of the patients had a diagnosis of breast and GYN cancer. Therefore, future studies of gender
differences, particularly in attentional function should be done in samples of patients with cancer diagnoses that effect both genders equally (e.g., GI and lung). In addition, in future studies, depressive symptoms and anxiety should be evaluated through a clinical interview.

Implications for Practice and Research

Despite these limitations, the findings from this study add to the growing body of evidence on gender differences in psychological symptoms. In addition, given the high prevalence rates for clinically meaningful levels of all three symptoms in both men and women, clinicians need to perform more detailed assessments of these symptoms, particularly if routine screening using the Distress Thermometer is positive.\textsuperscript{47,48} Future studies will need to evaluate the underlying mechanisms that contribute to the gender differences in depressive symptoms, anxiety, and decrements in attentional function.
REFERENCES


Table 1. Differences in Demographic and Clinical Characteristics Between Female (n = 744) and Male (n=196) Patients

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Females</th>
<th>Males</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td>56.27 (11.97)</td>
<td>61.04 (11.67)</td>
<td>t=-4.99; p=&lt;.0001</td>
</tr>
<tr>
<td>Education (years)</td>
<td>16.26 (3.02)</td>
<td>15.97 (2.97)</td>
<td>t=1.18; p=.239</td>
</tr>
<tr>
<td>Body mass index (kg/m$^2$)</td>
<td>26.11 (5.95)</td>
<td>26.16 (4.72)</td>
<td>t=-0.14; p=.889</td>
</tr>
<tr>
<td>Karnofsky Performance Status score</td>
<td>79.80 (12.29)</td>
<td>82.28 (11.67)</td>
<td>t=-2.44; p=.015</td>
</tr>
<tr>
<td>Number of comorbidities</td>
<td>2.40 (1.43)</td>
<td>2.37 (1.32)</td>
<td>t=-0.14; p=.889</td>
</tr>
<tr>
<td>SCQ score</td>
<td>5.45 (3.12)</td>
<td>5.54 (3.10)</td>
<td>t=-0.34; p=.733</td>
</tr>
<tr>
<td>AUDIT score</td>
<td>2.64 (2.17)</td>
<td>3.77 (2.81)</td>
<td>t=-4.29; p&lt;.0001</td>
</tr>
<tr>
<td>Time since cancer diagnosis (years)</td>
<td>2.34 (4.37)</td>
<td>1.65 (2.86)</td>
<td>U; p=.042</td>
</tr>
<tr>
<td>Time since diagnosis (median)</td>
<td>0.445</td>
<td>0.435</td>
<td></td>
</tr>
<tr>
<td>Number of prior cancer treatments</td>
<td>1.80 (1.57)</td>
<td>1.41 (1.35)</td>
<td>t=3.47; p=.001</td>
</tr>
<tr>
<td>Number of metastatic sites including lymph node involvement</td>
<td>1.23 (1.29)</td>
<td>1.37 (1.09)</td>
<td>t=-1.48; p=.139</td>
</tr>
<tr>
<td>Number of metastatic sites excluding lymph node involvement</td>
<td>0.80 (1.11)</td>
<td>0.87 (0.96)</td>
<td>t=.90; p=.372</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td>X$^2$=.43; p=.934</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>70.6 (515)</td>
<td>70.7 (135)</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>7.1 (52)</td>
<td>8.4 (16)</td>
<td></td>
</tr>
<tr>
<td>Asian or Pacific Islander</td>
<td>12.2 (89)</td>
<td>11.5 (22)</td>
<td></td>
</tr>
<tr>
<td>Hispanic Mixed or Other</td>
<td>10.0 (73)</td>
<td>9.4 (18)</td>
<td></td>
</tr>
<tr>
<td>Married or partnered (% yes)</td>
<td>65.5 (482)</td>
<td>71.1 (138)</td>
<td>FE; p=.146</td>
</tr>
<tr>
<td>Lives alone (% yes)</td>
<td>20.7 (153)</td>
<td>18.8 (36)</td>
<td>FE; p=.615</td>
</tr>
<tr>
<td>Child care responsibilities (% yes)</td>
<td>24.4 (178)</td>
<td>17.3 (33)</td>
<td>FE; p=.042</td>
</tr>
<tr>
<td>Care of adult responsibilities (% yes)</td>
<td>8.4 (57)</td>
<td>7.7 (14)</td>
<td>FE; p=.880</td>
</tr>
<tr>
<td>Currently employed (% yes)</td>
<td>34.6 (255)</td>
<td>35.9 (70)</td>
<td>FE; p=.736</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td>KW; p=.913</td>
<td></td>
</tr>
<tr>
<td>&lt;$30,000</td>
<td>17.4 (115)</td>
<td>17.9 (32)</td>
<td></td>
</tr>
<tr>
<td>$30,000 to &lt;$70,000</td>
<td>21.8 (144)</td>
<td>20.1 (36)</td>
<td></td>
</tr>
<tr>
<td>$70,000 to &lt; $100,000</td>
<td>16.6 (110)</td>
<td>17.3 (31)</td>
<td></td>
</tr>
<tr>
<td>$100,000 or more</td>
<td>44.3 (293)</td>
<td>44.7 (80)</td>
<td></td>
</tr>
<tr>
<td>Specific comorbidities (% yes)</td>
<td></td>
<td>FE; p=.9&lt;.001</td>
<td></td>
</tr>
<tr>
<td>Heart disease</td>
<td>3.9 (29)</td>
<td>10.7 (21)</td>
<td></td>
</tr>
<tr>
<td>High blood pressure</td>
<td>29.8 (222)</td>
<td>34.2 (67)</td>
<td>FE; p=.258</td>
</tr>
<tr>
<td>Lung disease</td>
<td>9.5 (71)</td>
<td>20.9 (41)</td>
<td>FE; p&lt;.0001</td>
</tr>
<tr>
<td>Diabetes</td>
<td>7.7 (57)</td>
<td>10.7 (21)</td>
<td>FE; p=.189</td>
</tr>
<tr>
<td>Ulcer or stomach disease</td>
<td>4.2 (31)</td>
<td>4.6 (9)</td>
<td>FE; p=.842</td>
</tr>
<tr>
<td>Kidney disease</td>
<td>0.8 (6)</td>
<td>1.0 (2)</td>
<td>FE; p=.675</td>
</tr>
<tr>
<td>Liver disease</td>
<td>5.5 (41)</td>
<td>7.1 (14)</td>
<td>FE; p=.393</td>
</tr>
<tr>
<td>Anemia or blood disease</td>
<td>14.2 (106)</td>
<td>3.6 (7)</td>
<td>FE; p&lt;.0001</td>
</tr>
<tr>
<td>Depression</td>
<td>20.7 (154)</td>
<td>15.3 (30)</td>
<td>FE; p=.105</td>
</tr>
<tr>
<td>Osteoarthritis</td>
<td>13.4 (100)</td>
<td>6.6 (13)</td>
<td>FE; p=.009</td>
</tr>
<tr>
<td>Back pain</td>
<td>27.0 (201)</td>
<td>21.4 (42)</td>
<td>FE; p=.120</td>
</tr>
<tr>
<td>Rheumatoid arthritis</td>
<td>4.0 (30)</td>
<td>2.0 (4)</td>
<td>FE; p=.280</td>
</tr>
<tr>
<td>Exercise on a regular basis (% yes)</td>
<td>69.0 (508)</td>
<td>70.9 (139)</td>
<td>FE; p=.663</td>
</tr>
<tr>
<td>Smoking, current or history of (% yes)</td>
<td>32.3 (237)</td>
<td>47.4 (90)</td>
<td>FE; p=&lt;.0001</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>------------</td>
<td>-----------</td>
<td>--------------</td>
</tr>
<tr>
<td>Cancer diagnosis</td>
<td></td>
<td></td>
<td>X²=341.44;</td>
</tr>
<tr>
<td>Breast</td>
<td>50.9 (379)</td>
<td>1.5 (3)</td>
<td>F&gt;M</td>
</tr>
<tr>
<td>Gastrointestinal (GI)</td>
<td>16.5 (123)</td>
<td>69.9 (137)</td>
<td>M&gt;F</td>
</tr>
<tr>
<td>Gynecological (GYN)</td>
<td>23.7 (176)</td>
<td>0.5 (1)</td>
<td>F&gt;M</td>
</tr>
<tr>
<td>Lung</td>
<td>8.9 (66)</td>
<td>28.1 (55)</td>
<td>M&gt;F</td>
</tr>
<tr>
<td>Reason for current treatment</td>
<td></td>
<td></td>
<td>X²=12.10; p=.007</td>
</tr>
<tr>
<td>Curative</td>
<td>77.4 (566)</td>
<td>74.1 (140)</td>
<td>M&gt;F</td>
</tr>
<tr>
<td>Palliative</td>
<td>22.6 (165)</td>
<td>25.9 (49)</td>
<td>NS</td>
</tr>
<tr>
<td>Type of prior cancer treatment</td>
<td></td>
<td></td>
<td>X²=12.10; p=.007</td>
</tr>
<tr>
<td>No prior treatment</td>
<td>18.9 (139)</td>
<td>30.4 (58)</td>
<td>M&gt;F</td>
</tr>
<tr>
<td>Only surgery, CTX, or RT</td>
<td>43.7 (321)</td>
<td>37.2 (71)</td>
<td>NS</td>
</tr>
<tr>
<td>Surgery &amp; CTX, or Surgery &amp; RT</td>
<td>22.1 (162)</td>
<td>20.4 (39)</td>
<td>NS</td>
</tr>
<tr>
<td>RT, or CTX &amp; RT</td>
<td>15.3 (112)</td>
<td>12.0 (23)</td>
<td>NS</td>
</tr>
</tbody>
</table>

Abbreviations: AUDIT = Alcohol Use Disorders Identification Tests, CTX = chemotherapy, F = female, kg = kilograms, KW = Kruskal Wallis, M = male, m² = meter squared, NS = not significant, RT = radiation therapy; SCQ = Self-Administered Comorbidity Questionnaire, SD = standard deviation, U = Mann Whitney U test
Table 2. Differences in Depression, Anxiety, and Attentional Function Scores Between Female (n = 744) and Male (n = 196) Patients

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Females</th>
<th>Males</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>t-value; p-value</td>
</tr>
<tr>
<td>Center for Epidemiological Studies – Depression Scale (CES-D)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somatic subscale</td>
<td>5.97 (4.16)</td>
<td>5.02 (3.86)</td>
<td>t=2.86; p=.004</td>
</tr>
<tr>
<td>Depressed affect subscale</td>
<td>3.79 (4.42)</td>
<td>2.60 (3.62)</td>
<td>t=3.85; p&lt;.0001</td>
</tr>
<tr>
<td>Positive affect subscale</td>
<td>8.67 (3.02)</td>
<td>9.11 (2.84)</td>
<td>t=-1.82; p=.070</td>
</tr>
<tr>
<td>Interpersonal problems subscale</td>
<td>0.25 (0.77)</td>
<td>0.20 (0.62)</td>
<td>t=0.89; p=.373</td>
</tr>
<tr>
<td>CES-D total score</td>
<td>13.35 (9.83)</td>
<td>10.72 (8.55)</td>
<td>t=3.68; p&lt;.0001</td>
</tr>
<tr>
<td>Trait Anxiety Inventory score</td>
<td>35.73 (10.84)</td>
<td>33.22 (9.84)</td>
<td>t=3.09; p=.002</td>
</tr>
<tr>
<td>State Anxiety Inventory score</td>
<td>34.07 (12.71)</td>
<td>31.98 (11.27)</td>
<td>t=2.22; p=.027</td>
</tr>
<tr>
<td>Attentional Function Index (AFI)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effective action subscale</td>
<td>6.00 (2.12)</td>
<td>6.53 (2.14)</td>
<td>t=-3.05; p=.002</td>
</tr>
<tr>
<td>Attentional lapses subscale</td>
<td>6.44 (2.04)</td>
<td>7.08 (1.99)</td>
<td>t=-3.87; p&lt;.0001</td>
</tr>
<tr>
<td>Interpersonal effectiveness subscale</td>
<td>6.74 (1.98)</td>
<td>7.02 (1.87)</td>
<td>t=-1.78; p=.075</td>
</tr>
<tr>
<td>Total AFI score</td>
<td>6.28 (1.78)</td>
<td>6.77 (1.76)</td>
<td>t=-3.39; p=.001</td>
</tr>
</tbody>
</table>

Abbreviation: SD = standard deviation
Figure 1

- CES-D total score <16.0
- CES-D total score >16.0

* p<.0001

Percentage of patients

Females
Males
Figure 2

A. 

![Bar chart showing the percentage of patients with different trait anxiety total scores.](chart1.png) 

- **Trait anxiety total score <31.8**
- **Trait anxiety total score >31.8**
- **Females**
- **Males**

B. 

![Bar chart showing the percentage of patients with different state anxiety total scores.](chart2.png) 

- **State anxiety total score <32.2**
- **State anxiety total score >32.2**
- **Females**
- **Males**

**p = 0.004**

**p = 0.041**
Figure 3

The figure shows the percentage of patients with different AFI total scores divided by males and females. The p-value is 0.001.
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