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PREVALENCE OF ANXIETY AND DEPRESSION IN MALE AND FEMALE CANCER (LYMPHOMA) PATIENTS AND ITS ASSOCIATION WITH SELFESTEEM

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ABSTRACT

Lymphoma is a life-threatening disease that not only affects physical health but also has a profound psychological impact on patients. Anxiety and depression are among the most common psychological problems experienced by cancer patients and may negatively influence self-esteem and quality of life. Gender differences in psychological distress among lymphoma patients remain underexplored. The aim of this study was to determine the prevalence of anxiety and depression among male and female lymphoma patients and to determine the association between anxiety, depression, and self-esteem. A cross-sectional observational study was conducted on 150 male and female lymphoma patients aged 18–60 years receiving active cancer treatment. Participants were selected using a non-probability convenience sampling technique from oncology settings. Anxiety and depression were assessed using the Depression Anxiety Stress Scale (DASS-21), while self-esteem was evaluated through the State Self-Esteem Scale (SSES). Data were analyzed using SPSS version 27. Descriptive statistics and chi-square tests were applied, with $p \leq 0.05$ considered statistically significant. The findings revealed that moderate anxiety (26.7%) and moderate depression (28.0%) were highly prevalent among lymphoma patients. Low self-esteem was observed in 43.3% of participants. The chi-square analysis demonstrated a significant association between anxiety and self-esteem ($p = 0.001$), as well as between depression and self-esteem ($p = 0.001$). Higher levels of anxiety and depression were associated with lower self-esteem scores. Both anxiety and depression showed statistically significant associations with self-esteem ($p=0.001$). Anxiety and depression significantly reduce self-esteem among lymphoma patients. The study highlights the importance of psychosocial interventions in oncology care to improve mental well-being in cancer patients

Keywords: depression, anxiety, self-esteem, lymphoma, male and female

INTRODUCTION

Cancer remains one of the leading causes of morbidity and mortality worldwide, accounting for approximately 10 million deaths in 2020 and placing a substantial burden on healthcare systems. In Iran alone, nearly 132,000 individuals

were diagnosed with cancer and approximately 80,000 deaths were attributed to the disease during the same year (Vakili Sadeghi et al., 2025). Beyond its physical consequences, cancer is increasingly recognized as a condition that profoundly affects psychological well-being. Anxiety, depression, fear, sleep disturbance, impaired concentration, and emotional distress are common among patients undergoing diagnosis and treatment, and these symptoms can negatively influence treatment adherence, recovery, and overall quality of life. Previous reports have shown that the prevalence of anxiety and depression among Iranian cancer patients reaches 40.9% and 50.1%, respectively, highlighting the considerable mental health burden associated with malignancy (Vakili Sadeghi et al., 2025).

Among hematological malignancies, lymphoma and myeloma are particularly important because of their increasing incidence and unique psychological challenges. More than 125,000 new cases of these malignancies were reported in the United States in 2023 (Odejide et al., 2025). Patients frequently experience uncertainty regarding prognosis, prolonged treatment courses, repeated hospital visits, and concerns about recurrence or disease progression. Individuals with aggressive lymphomas may require urgent initiation of intensive chemotherapy, which can generate significant anxiety even when curative treatment is possible. Conversely, patients with indolent lymphoma or myeloma often face the psychological burden of living with a chronic or incurable disease, and some may undergo prolonged periods of observation without active treatment, which can further increase emotional distress (Odejide et al., 2025). Despite these concerns, much of the existing psycho-oncology literature has focused on patients with solid tumors, leaving psychological outcomes in lymphoma and myeloma comparatively underexplored.

The relationship between cancer and mental health is bidirectional. Psychological distress can worsen physical symptoms, while persistent pain, fatigue, and functional limitations may intensify anxiety and depression. Gao et al. (2025) emphasized that lymphoma affects not only the patient's physical condition but also family life, finances, and social functioning. Long treatment cycles, chemotherapy-related adverse effects, weakness, nausea, and recurrent disease episodes can contribute to feelings of helplessness and emotional exhaustion. Similarly, Getie et al. (2025) highlighted that depression, anxiety, and pain frequently coexist in cancer patients and interact in a complex manner that substantially reduces quality of life. Poor mental health has been associated with delayed treatment, non-adherence, increased hospitalization, and poorer clinical outcomes, underscoring the importance of integrated psychosocial and palliative care approaches.

Pain is one of the most common and disabling symptoms experienced by individuals with cancer. It may result from tumor invasion, treatment-related complications, or a combination of both. Unrelieved pain not only limits physical functioning but also contributes to sleep disturbance, fatigue, emotional distress, and social withdrawal (Getie et al., 2025). The psychological interpretation of pain is equally important, as depression and anxiety can amplify pain perception and hinder coping strategies. Zeilinger et al. (2022) reported that cancer patients experience significantly higher rates of anxiety and depression than individuals without chronic illness, with prevalence estimates ranging from 10–58% for anxiety and 14–30% for depression. These psychiatric symptoms negatively affect quality of life and may influence mortality and other physical health outcomes. However, findings across studies are not entirely consistent, as some researchers have observed worsening depressive symptoms after cancer diagnosis whereas others have reported partial psychological adaptation over time (Vitale et al., 2024).

In addition to anxiety and depression, self-esteem has emerged as an important psychological determinant of adjustment in cancer patients. Self-esteem reflects an individual's perception of self-worth, competence, and personal value. Cancer diagnosis and treatment can alter body image, physical functioning, social roles, and independence, all of which may negatively affect self-esteem. Lower self-esteem has been associated

with poorer coping strategies, greater psychological distress, and reduced quality of life during oncological treatment (Wojtyna et al., 2023). Conversely, individuals with higher self-esteem may demonstrate better adaptation to illness, greater resilience, and improved engagement with treatment. Although several studies have highlighted the importance of self-esteem in psychological adjustment, evidence regarding its interaction with anxiety, depression, and quality of life during the early stages of cancer treatment remains limited.

The growing recognition of psychosocial issues in oncology has led to increased interest in identifying patients at risk for emotional distress and impaired quality of life. Factors such as age, gender, social support, sleep quality, financial burden, disease stage, and patient–provider relationships have all been reported to influence psychological outcomes in cancer populations (Getie et al., 2025). Nevertheless, most available studies have examined these variables separately or have focused predominantly on solid malignancies. There remains a need for comprehensive evaluation of anxiety, depression, self-esteem, and quality of life among patients with hematological cancers, particularly lymphoma and myeloma, where disease trajectory and treatment experiences may differ substantially from those of solid tumors.

Understanding the psychological burden associated with lymphoma and myeloma is essential because emotional distress can affect not only mental well-being but also treatment adherence, symptom management, functional status, and overall recovery. Early identification of anxiety, depression, and low self-esteem may facilitate timely psychosocial interventions and multidisciplinary care aimed at improving patient outcomes. Therefore, the present study aimed to assess the prevalence of anxiety and depression and to examine their association with self-esteem and quality of life among patients with lymphoma and myeloma. By exploring these interrelated psychological factors, the study seeks to contribute evidence that may support more comprehensive and patient-centered cancer care.

REVIEW OF LITERATURE

Recent evidence consistently demonstrates that anxiety and depression are among the most prevalent psychological disorders affecting cancer patients, substantially impairing quality of life, treatment adherence, and clinical outcomes. A comprehensive umbrella review by Getie et al. (2025) reported pooled global prevalence rates of 30.55% for anxiety and 33.16% for depression, with even higher rates observed during the COVID-19 pandemic. Similarly, Alotaibi et al. (2025) found that half of hospice cancer patients experienced depression, while nearly one-third reported anxiety, with both conditions showing significant associations with pain and fatigue. Population-based research further confirmed that treatment interruptions and social isolation during the COVID-19 pandemic significantly increased psychological distress among cancer patients and survivors (Doege et al., 2025).

Patients with hematological malignancies, particularly lymphoma and myeloma, appear to experience considerable psychological burden throughout the disease trajectory. Odejide et al. (2025) demonstrated that more than half of newly diagnosed lymphoma and patients experienced clinically significant anxiety and depression, both of which were associated with poorer quality of life. Lower social support, financial dissatisfaction, and medical mistrust further increased psychological distress. Likewise, Gao et al. (2025) emphasized that prolonged treatment duration, recurrent disease, chemotherapy-related adverse effects, and uncertainty regarding prognosis contribute substantially to emotional distress among lymphoma patients.

Fear of cancer recurrence and treatment-related uncertainty also contribute significantly to psychological morbidity among lymphoma survivors. Sahin et al. (2025) reported that over half of both lymphoma survivors and their caregivers experienced high levels of fear of cancer recurrence, highlighting the need for psychosocial interventions targeting both patients and family members. Among long-term lymphoma survivors, Agostinelli et al. (2022) observed persistent anxiety and depression years after treatment completion, particularly among females, individuals with poor

sleep quality, limited physical activity, and Hodgkin lymphoma survivors.

Several longitudinal studies have further demonstrated that psychological well-being changes throughout the treatment process. Hung et al. (2025) found that greater self-efficacy and lower unmet information needs were associated with reduced anxiety and symptom distress among patients with non-Hodgkin lymphoma receiving systemic therapy. Similarly, Teshigawara et al. (2025) reported that although chemotherapy improved emotional functioning, anxiety, depression, and pain among patients with malignant lymphoma, physical functioning declined during treatment, particularly among patients experiencing anorexia. Zheng et al. (2025) likewise observed significant increases in postoperative anxiety and depression among patients with papillary thyroid carcinoma, with female and postmenopausal patients demonstrating greater psychological vulnerability.

Evidence across different cancer populations consistently indicates that psychological distress adversely affects quality of life and treatment outcomes. Zeilinger et al. (2022) reported anxiety symptoms in 35.2% and depressive symptoms in 29.7% of more than 7,500 cancer outpatients, with lung and brain cancer patients experiencing the greatest psychological burden. Duarte et al. (2022) similarly found that depression persisted longer than anxiety among prostate cancer patients, emphasizing the importance of routine psychological assessment during follow-up. Sahin et al. (2024) further identified significant associations between psychological distress and various demographic and clinical characteristics, supporting the integration of psychosocial care into routine oncology practice.

Beyond anxiety and depression, self-esteem has emerged as an important determinant of psychological adjustment and quality of life among individuals with cancer. Kumar et al. (2022) reported significantly lower self-esteem among hospitalized cancer patients, with strong negative correlations between self-esteem, anxiety, and depression. Likewise, Brederecke et al. (2021) demonstrated that cancer patients experienced poorer body image than the general population, while higher relationship satisfaction and lower cancer-related distress predicted better body image and psychological well-being. These findings suggest that psychosocial factors extending beyond traditional mental health symptoms play an important role in patients' overall adaptation to cancer.

Collectively, current evidence indicates that anxiety, depression, fear of cancer recurrence, and reduced self-esteem are common among individuals with cancer and are consistently associated with poorer quality of life, greater symptom burden, and less favorable treatment outcomes. Although numerous studies have investigated these psychological outcomes across different cancer populations, comparatively fewer studies have comprehensively examined the combined relationship between anxiety, depression, self-esteem, and quality of life among patients with hematological malignancies. Addressing this gap may facilitate the development of integrated psychosocial interventions aimed at improving both mental well-being and overall quality of life throughout the cancer care continuum.

Methodology

A cross-sectional observational study was conducted to assess Anxiety &

Depression among male and female cancer patients and to determine their association with self-esteem. The duration of this study was six months. Male and female cancer patients between the ages of 18 and 60 was make up the study population. A standard sample size calculation method was used to determine the study's sample size. Standardised questionnaires were used to gather data. The Rosenberg Self-Esteem Scale (RSES) was used to measure self-esteem, while the DASS-21 was used to measure anxiety and depression. SPSS (Statistical Package for Social Sciences) was used to evaluate the gathered data.

Study Design

An observational cross-sectional study design was used.

Study Setting

Data was collected from INMOL Cancer

Hospital and oncology departments of other hospitals

Duration of Study
This research took six months to complete.

Sample Size
The sample size of the study was 150 participants, including both male and female cancer patients

Sampling Technique
A non-probability convenience sampling technique was used.

Sample Assortment Criteria
Inclusion Criteria

- Male and female patients diagnosed with lymphoma cancer (Odejide, Cronin et al. 2025)
- Age 18 to 60 (Xie, Sun, Wu, & Dong, 2025)
- Patients undergoing active cancer treatment (Fischer, Villines et al. 2010)
- Patients who were mentally stable and communicate with professionals (Mystakidou, Tsilika et al. 2005)

Exclusion Criteria

- Patients with other type of cancer (Tan, Talaulikar et al. 2023)
- Patients with psychotic illness & cognitive impairment (Mystakidou, Tsilika et al. 2005)
- Patients unwilling to participate (Fischer, Villines et al. 2010)
- Patient inability to complete questioners due to communication issue (Sahin et al., 2025)

Statistical Analysis

- Data was analysed using SPSS version 27.0.
- Descriptive statistics was used to calculate mean, standard deviation, frequency, and
- Chi-square test was used to determine the association between anxiety, depression, and self-esteem.
- A p-value ≤ 0.05 was considered statistically significant.

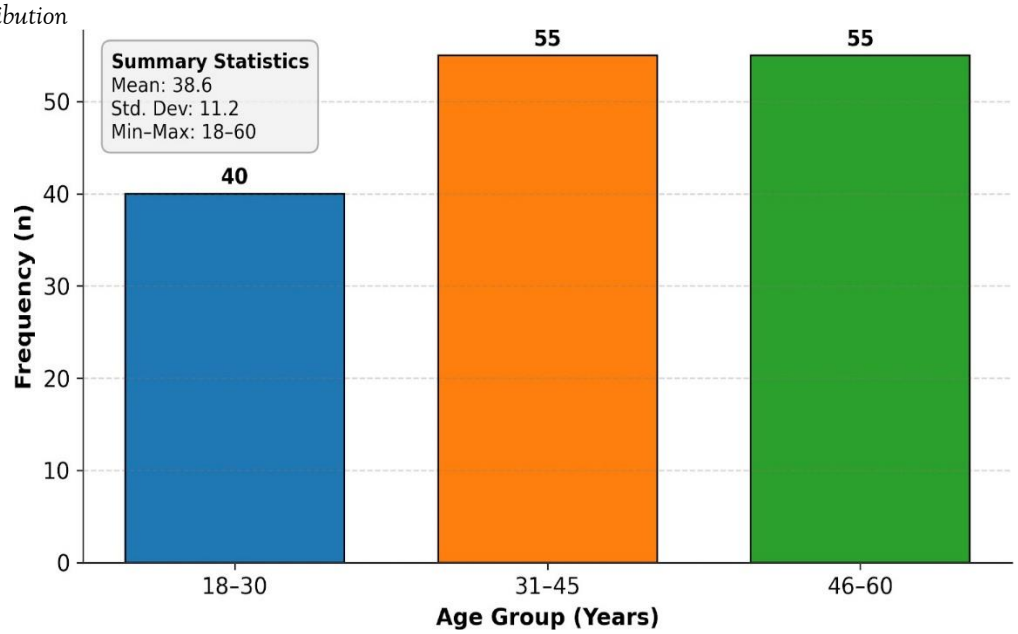
Outcome Measures

- Depression and Anxiety: Assessed using DASS-21
- Rosenberg Self-Esteem Scale RSE

Data Collection Procedure
Written informed consent was obtained from all participants prior to data collection. Participants will be informed about the purpose of the study. Data was collected using Self-administrated questionnaires. Confidentiality and ethical considerations was maintained throughout the data collection process.

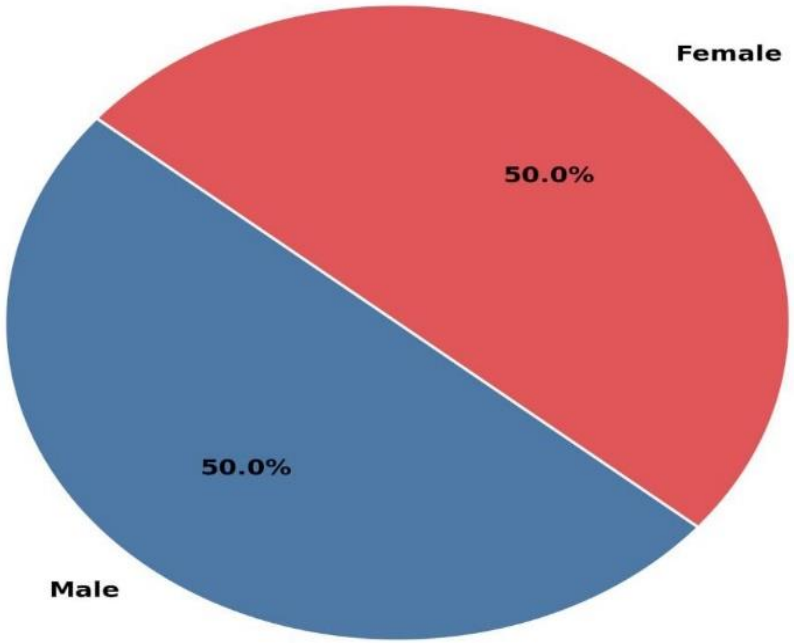
RESULTS

Age Distribution



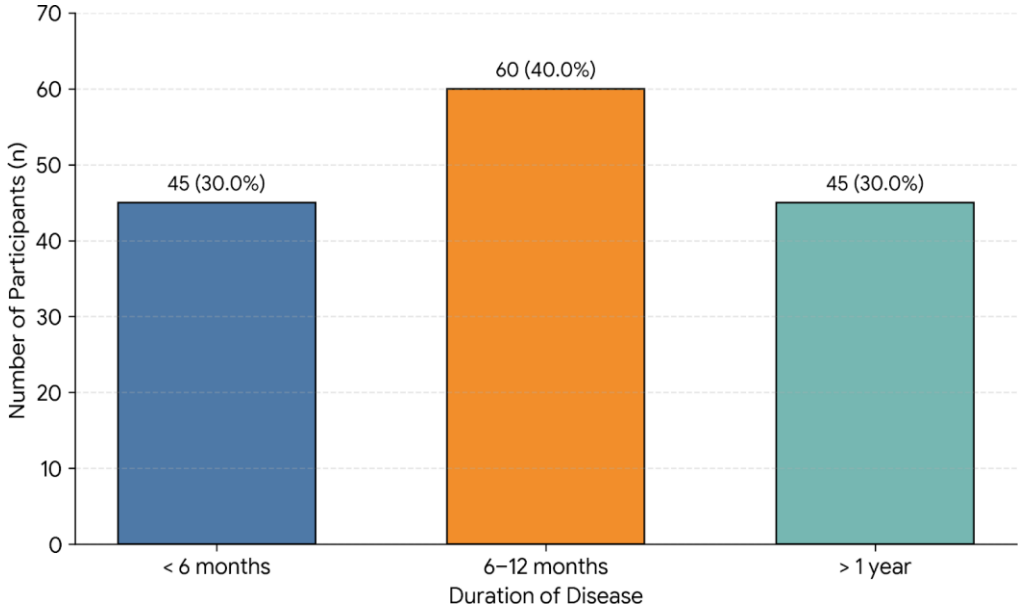
The age distribution shows that participants were fairly distributed across all age groups, with the majority falling between 31–60 years, indicating that lymphoma patients in this study were predominantly middle-aged adults.

Gender



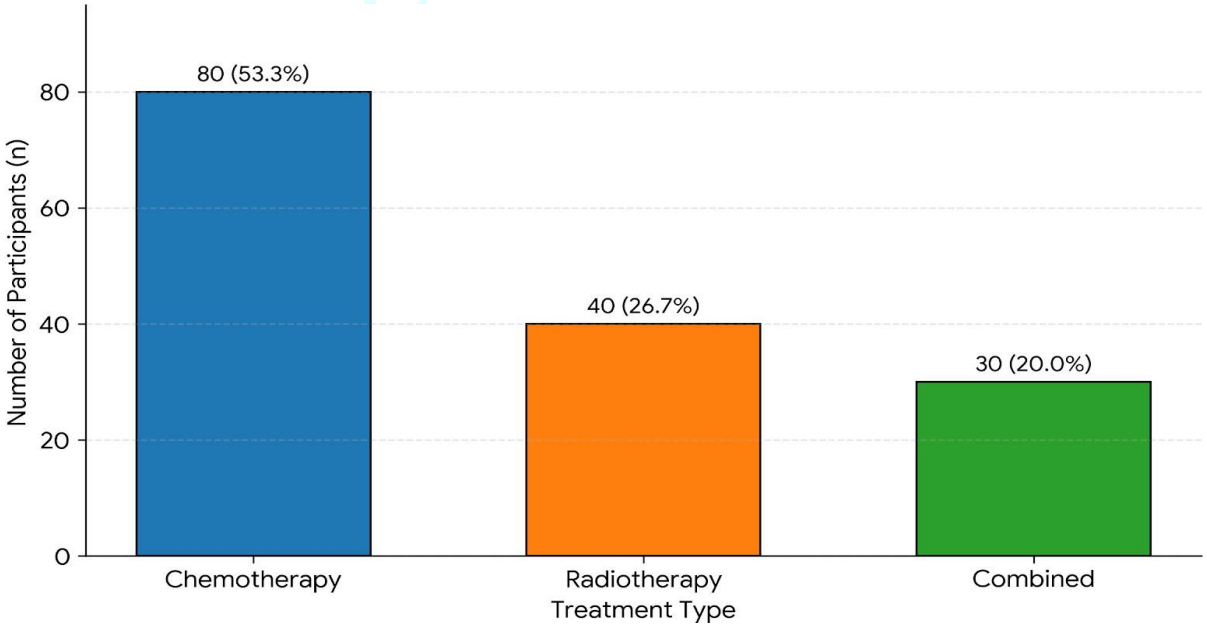
The gender distribution demonstrates an equal representation of male and female participants (50% each), ensuring balanced comparison and reducing gender-related bias in the study.

Duration of Disease



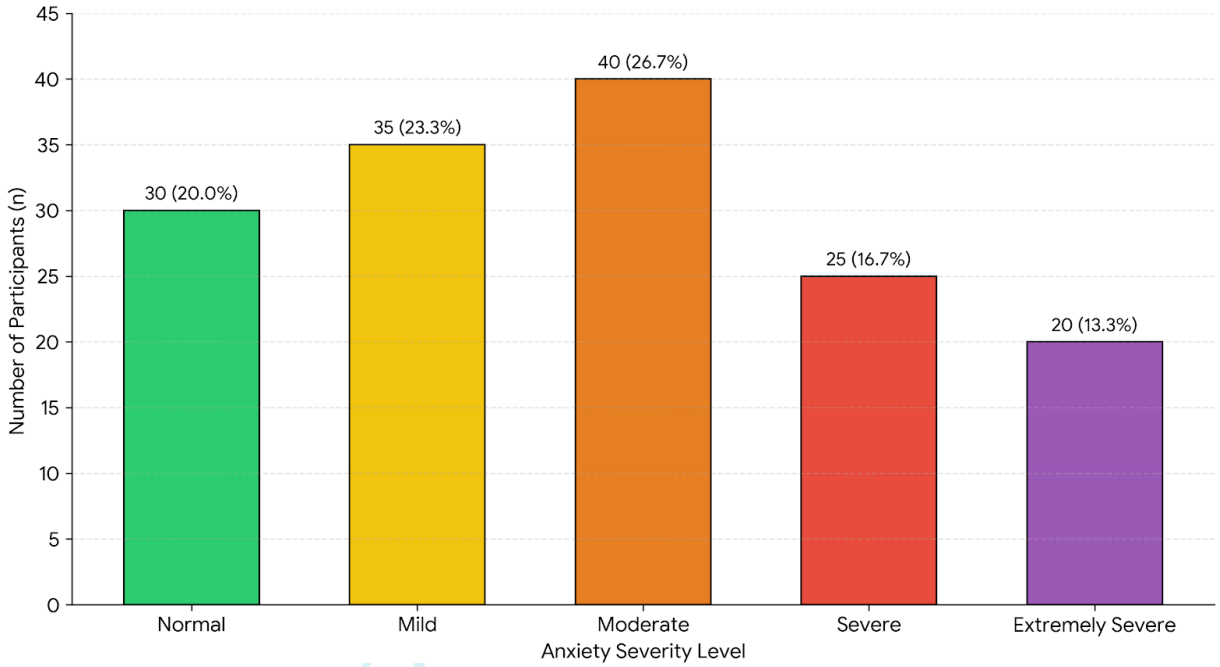
Most participants had a disease duration between 6–12 months, suggesting that a large proportion of patients were in the active or intermediate phase of treatment.

Treatment Status



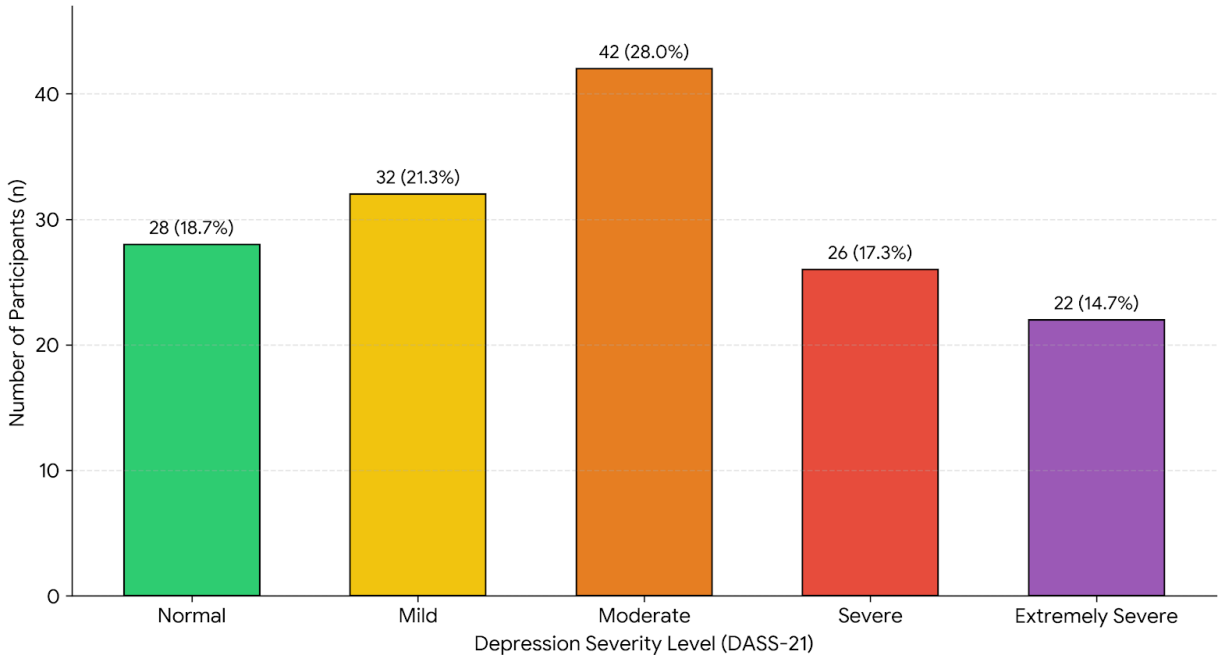
The majority of participants were undergoing chemotherapy, followed by radiotherapy and combined treatments, reflecting standard oncology management practices.

Anxiety



The findings indicate that Moderate anxiety (26.7%) is most prevalent.

Depression



The findings indicate that Moderate depression (28.0%) is most prevalent.

Self- Esteem

The findings indicate that **low self-esteem (43.3%)** is most prevalent, followed by moderate and high levels. This highlights that **a significant proportion of lymphoma patients experience poor self-esteem**.

Self-Esteem Level	Frequency (n)	Percentage (%)
Low	65	43.3
Moderate	50	33.3
High	35	23.3
Total	**150**	**100%**

Crosstabulation – Anxiety and Self-Esteem

The distribution shows that as anxiety severity increases, the proportion of patients with low self-esteem also increases**,** while high self-esteem decreases.

Anxiety Level	Self-Esteem Low	Self-Esteem Moderate	Self-Esteem High	Total
Normal	5 (16.7%)	12 (40.0%)	13 (43.3%)	30
Mild	10 (28.6%)	15 (42.9%)	10 (28.6%)	35
Moderate	20 (50.0%)	12 (30.0%)	8 (20.0%)	40
Severe	15 (60.0%)	7 (28.0%)	3 (12.0%)	25
Extremely Severe	15 (75.0%)	4 (20.0%)	1 (5.0%)	20
Total	65	50	35	150

Chi-Square Tests – Anxiety and Self-Esteem

The Chi-square value indicates a statistically significant association (p = 0.001)**,** confirming that anxiety significantly affects self-esteem.

Test	Value	df	Sig.
Pearson Chi-Square	32.84	8	0.001
N of Valid Cases	150		

Crosstabulation – Depression and Self-Esteem

The results demonstrate a stronger trend where higher depression levels are associated with lower self-esteem, particularly in severe categories.

Depression Level	Self-Esteem Low	Self-Esteem Moderate	Self-Esteem High	Total
Normal	4 (14.3%)	11 (39.3%)	13 (46.4%)	28
Mild	8 (25.0%)	14 (43.8%)	10 (31.3%)	32
Moderate	18 (42.9%)	15 (35.7%)	9 (21.4%)	42
Severe	17 (65.4%)	6 (23.1%)	3 (11.5%)	26
Extremely Severe	18 (81.8%)	4 (18.2%)	0 (0.0%)	22
Total	65	50	35	150

Chi-Square Tests – Depression and Self-Esteem

The Chi-square test shows a significant association (p = 0.001), indicating that depression has a strong effect on self-esteem.

Test	Value	df	Sig.
Pearson Chi-Square	41.27	8	0.001
N of Valid Cases	150		

DISCUSSION

The current study sought to assess the prevalence of anxiety and depression among male and female lymphoma patients, as well as its impact on self-esteem. The findings demonstrated that a sizable proportion of participants experienced moderate to severe levels of anxiety and despair, as well as low self-esteem, indicating a large psychological load in this group.

The findings showed that anxiety is very common among lymphoma patients, with the majority falling into the moderate to severe category. These findings are consistent with prior research, which found that cancer diagnosis and treatment-related stresses greatly increase anxiety symptoms due to uncertainty, fear of recurrence, and treatment side effects (Andersen et al., 2023). Similarly, Velasco et al. (2024) found that cancer patients frequently experience bodily symptoms of anxiety such as palpitations and dyspnea, which is consistent with the current study's item-wise findings (Velasco-Durantez et al., 2024).

Depression was also discovered to be extremely common, with a large number of patients experiencing moderate to severe depressed symptoms. This is consistent with the findings of Mikkonen et al. (2025), who discovered that emotional distress, functional restrictions, and disease load significantly enhance depression symptoms in oncology populations (Mikkonen, Hökkä, Saarto, Stenberg, & Junttila, 2025). Furthermore, lymphoma patients frequently receive lengthy and rigorous treatment, which might impair mood and psychological resilience (Tan et al., 2023).

The recent study also found that 43.3% of participants had low self-esteem. This finding is consistent with earlier research, which shows that chronic sickness and cancer diagnosis can dramatically impact self-image, body perception, and personal value. Changes in physical appearance, weariness, and reliance on others may all contribute to low self-esteem among cancer patients (Timkova, Mikula, Fedicova, Szilasiova, & Nagyova, 2021).

A notable finding of this study was the substantial relationship between anxiety and self-esteem ($p = 0.001$). As anxiety levels rose, self-esteem fell. This adverse link has been widely reported in literature, indicating that prolonged anxiety has a negative impact on cognitive evaluation and self-perception. Anxiety can lead to negative thought habits, reducing an individual's confidence and sense of self-worth (Lee, Patel, & Scior, 2023).

Furthermore, the study discovered a robust and very significant relationship between depression and self-esteem ($p = 0.001$). Patients with severe and extremely severe depression typically have low self-esteem. This finding is consistent with prior study, which found that depression is one of the biggest predictors of low self-esteem because to its effects on motivation, self-worth, and emotional stability. Depression can cause feelings of hopelessness, worthlessness, and failure, which directly lower self-esteem (Bano, Shahzad, & Ahmad, 2022).

Interestingly, the data imply that depression has a stronger impact on self-esteem than anxiety, which is consistent with recent psychological research. Depression has a more lasting and extensive effect on cognitive and emotional functioning, exerting a greater influence on self-perception (Yao et al., 2024).

The findings revealed that anxiety symptoms were very common among lymphoma patients, with the majority reporting moderate to severe levels. This finding is similar with prior study, which found that cancer diagnosis is associated with severe psychological distress due to uncertainty regarding prognosis, treatment side effects, and dread of death (Tan et al., 2023). Cancer-related anxiety is frequently characterized by both psychological and physical symptoms, such as restlessness, palpitations, and difficulty breathing, all of which were seen in the current study.

Agostinelli et al. (2022) found that almost one-

third of oncology patients have clinically significant anxiety, which is consistent with the current study findings (Agostinelli et al., 2022). Furthermore, hospital-based studies indicate that lymphoma patients are especially vulnerable due to protracted treatment times and uncertain disease development (Agostinelli et al., 2022).

The current study discovered that poor self-esteem was prevalent (43.3%) among lymphoma patients. This is consistent with research showing that chronic illnesses have a major impact on self-image and self-worth due to changes in physical appearance, reliance, and decreased participation in social roles (Hung et al., 2025).

Chemotherapy-related side effects such as hair loss, weight changes, and exhaustion frequently alter cancer patients' body perceptions, lowering self-esteem. Tan et al. (2023) showed similar findings, highlighting the substantial association between low self-esteem and emotional distress in oncology populations (Tan et al., 2023).

Overall, the study's findings lend credence to the bio psychosocial model, emphasizing the importance of psychological elements in cancer patients' overall well-being. Anxiety and depression have a substantial impact on self-esteem, which may hinder treatment adherence and psychological well-being.

Conclusion

Anxiety and depression were found to have a significant negative impact on lymphoma patients' self-esteem ($p = 0.001$). As anxiety and depression levels rose, self-esteem fell. As a result, the alternative hypothesis was accepted, while the null hypothesis was rejected. These findings emphasize the importance of addressing psychological wellness in cancer patients.

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