Cogitare Enfermagem

ORIGINAL ARTICLE

ANXIETY AND DEPRESSION IN CANCER PATIENTS: ASSOCIATION WITH CLINICAL ASPECTS AND ADHERENCE TO ONCOLOGICAL TREATMENT

HIGHLIGHTS

1. Anxiety and depression are prevalent (69.6%) in cancer patients.
2. Simultaneous depression and anxiety were prevalent in 59.4% of the sample.
3. Anxiety and depression associated with clinical aspects.
4. Need for psychosocial support for cancer patients.

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ABSTRACT

Objective: to identify symptoms of anxiety and depression in cancer patients and their association with clinical aspects and adherence to oncological treatment. **Method:** a cross-sectional study with a convenience sample conducted between September 2020 and May 2021, including patients diagnosed with cancer from all regions of Brazil. The instruments used were the *Hospital Anxiety and Depression Scale* and the *Morisky Test*. Multivariate logistic regression analyses were conducted to verify associations. **Results:** the sample included 69 patients, of whom 69.6% presented anxiety, and the same proportion presented depression. Simultaneous anxiety and depression were present in 59.4% of the cases. Anxiety was associated with the presence of fatigue. Depression was associated with the time of diagnosis, asthenia, and treatment location. The simultaneous occurrence of anxiety and depression was associated with asthenia and treatment location. **Conclusion:** high levels of anxiety and depression underscore the need to implement psychosocial support interventions for cancer patients.

KEYWORDS: Anxiety; Depression; Cancer Survivors; Treatment Cooperation and Adherence; Psycho-Oncology.

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INTRODUCTION

The diagnosis of cancer can have a significant impact on patients' lives, affecting both their physical and mental health. Among the various impacts, psychological distress can significantly affect these individuals, with anxiety and depression being widely studied due to their high prevalence and negative consequences on health and quality of life[1].

Previous studies have demonstrated a prevalence of depression ranging from 23.4% to 42.6% and anxiety from 19.1% to 40.9% among cancer patients[2-3]. Depressive disorders and anxiety disorders are psychiatric disorders characterized by distinct clinical manifestations that significantly affect emotional and psychosocial aspects. Depression is characterized by a persistent state of profound sadness and loss of interest in previously enjoyable activities, while anxiety disorders manifest through excessive worrying, physiological anxiety responses, and intense fears[4].

Symptoms of anxiety and depression may vary depending on the treatment process and the prognosis of the disease, potentially resulting in consequences for quality of life and also for treatment adherence[5]. Furthermore, symptoms related to oncological disease and adverse effects arising from the therapeutic process may be associated with a higher prevalence of anxiety and depression[3].

Several clinical aspects derived from the process of illness and oncological treatment are related to the occurrence of anxiety and depression. Among these aspects, physical symptoms frequently reported by cancer patients stand out, such as pain, nausea and fatigue, which have a high prevalence[6]. Additionally, characteristics of the treatment itself, including the type of therapy administered (such as radiotherapy and chemotherapy) and factors related to this treatment, such as the extent of the disease, cancer type, and treatment location, emerge as risk factors for the development of anxiety and depression[7]. It is crucial to recognize the influence of these factors on patients' adherence to the oncological treatment, as such conditions can compromise the effectiveness of the treatment.

Cancer patients experiencing symptoms of anxiety and depression may be at a greater risk of reducing adherence to the proposed oncological treatment, thereby impacting the overall expected outcomes[8]. However, a previous study demonstrated inconsistent results in assessing the association between adherence levels to oncological treatment and symptoms of anxiety and depression among cancer patients[9]. Given the lack of consensus in the literature, it becomes evident that additional research is needed to contribute to the understanding of the association between these variables.

It is relevant to emphasize that previously published research has some limitations, as it was not conducted in a Brazilian context, thus hindering the generalization of results to the national context, considering regional particularities[10]. Additionally, it is worth noting that the published literature often addresses anxiety and depression in isolation, without considering that these two conditions can be comorbidities and coexist simultaneously in cancer patients[11].

Therefore, the present study has the potential to contribute to advancing the understanding of the relationship between symptoms of anxiety and depression with the clinical aspects of oncological treatment, as well as with treatment adherence. Covering this association is crucial to provide a comprehensive view of the factors that may influence the development of anxiety and depression symptoms in patients diagnosed with cancer and to support the creation and implementation of mental health-related interventions.

The objective of the present study is to identify symptoms of anxiety and depression in cancer patients and their association with clinical aspects and adherence to oncological treatment.

METHOD

This is a descriptive, quantitative cross-sectional study conducted online, guided by the checklist *Strengthening the Reporting of Observational Studies in Epidemiology* (STROBE) e *Checklist for Reporting Results of Internet E-Surveys* (CHERRIES). Data collection was conducted through an online platform, using Google Forms, from September 2020 to May 2021.

The research was disseminated on social networks and hospital institution platforms, aiming to involve participants from all regions of Brazil. The sample was selected using convenience sampling, constituting a non-probabilistic sample of participants.

The inclusion criteria were patients of both sexes, undergoing oncological treatment during the research period, aged 18 years or older, with internet access, and capable of reading and understanding text. Cancer patients who did not have a prescription for home medication use were excluded.

The sociodemographic characteristics of the participants included questions such as: age (continuous); gender (male / female); marital status (without partner / with partner); religiosity (yes / no); living situation (with family / alone); education level (illiterate / up to 8 years / 8 to 11 years / 12 years or more); and income (up to one minimum wage / one to two minimum wages / two to five minimum wages / five or more minimum wages).

To assess symptoms of anxiety and depression, the instrument used was the *Hospital Anxiety and Depression Scale* (HADS). The scale was adapted and validated for the Brazilian context[12], consisting of 14 questions divided into two subscales: depression (seven items) and anxiety (seven items).

The questions on the instrument are scored on a scale of 0 to 3, depending on the symptoms reported by the patient in the last two weeks. The total score for each subscale ranges from 0 to 21 points, and in the present study, to characterize the presence of clinically significant symptoms for anxiety and depression, a cutoff score of ≥8 points was used, as it demonstrated the best sensitivity and specificity indices according to a previous study[13]. The reliability of the instrument was assessed using Cronbach's alpha (α) and McDonald's omega (ω), and they presented satisfactory values both for the total instrument (α = 0.947; ω = 0.947) and for the anxiety subscale (α = 0.904; ω = 0.909) and depression subscale (α = 0.929; ω = 0.931).

A questionnaire assessing clinical aspects and adverse effects of oncological treatment, created by the authors, was utilized. Among the clinical variables considered were information such as time of diagnosis, type of cancer, disease stage, type of treatment received (chemotherapy, radiotherapy, surgery, immunotherapy, among others), as well as the treatment location and the use of integrative practices.

Regarding the adverse effects of oncological treatment, the following symptoms were assessed through self-reporting: fatigue, nausea, vomiting, loss of appetite, asthenia, among others. These effects were evaluated through dichotomous questions, which allowed participants to indicate the presence or absence of symptoms during the course of oncological treatment.

Adherence to oncological treatment was assessed using the Morisky Test[13], a validated instrument for Brazil, which allows evaluating the patient's behavior regarding regular use of prescribed medication. The test consists of four questions, with each question being answered dichotomously, with the options "yes" or "no" Negative responses indicate adherence to treatment, with a value of 0 assigned, while positive responses indicate non-adherence and receive a value of 1. Based on the total score of the four questions on the

instrument, the following classification criteria are adopted: participants who score 0 are categorized as adherent, while those who score ≥1 are categorized as non-adherent.

This study used descriptive analysis to characterize the samples of patients included in the study. Additionally, association analysis was conducted using the chi-square test or Fisher's exact test, depending on the characteristics of the data. The variables that showed significant association ($p<0.05$) in the bivariate analysis were selected for inclusion in the multivariate logistic regression model.

Multivariate logistic regression was performed using the backward method to progressively remove statistically insignificant variables from the model, retaining only those with p-values < 0.05. This process allows identifying which variables are independently related to the variable of interest, thus controlling for the influence of other variables. This approach allows for a more robust and personalized analysis of the relationships between the variables under study. Therefore, the remaining variables in the multivariate logistic regression model are considered statistically significant ($p < 0.05$). The assumptions of multivariate logistic regression were evaluated for multicollinearity using tolerance and variance inflation factor (VIF) indices. For the anxiety variable, tolerance values were less than 0.93, while VIF values were less than 1.27. For the depression variable, tolerance values were less than 0.95, and VIF values were less than 2.11. These results indicate the absence of significant multicollinearity among the independent variables included in the multivariate logistic regression model.

The analyses were conducted using the *Statistical Package for the Social Sciences* (SPSS) version 24.

This study was approved by the Research Ethics Committee, with approval number 4.058.173.

RESULTS

The sample consisted of 69 oncological patients with a mean age of 52 years (standard deviation ± 14 years). Of the evaluated sample, 51 (73.9%) patients were female, 41 (59.4%) had a partner, and 55 (79.7%) were practitioners of some religion. Regarding living situation, 58 (84.1%) patients lived with family members, 34 (49.3%) had 12 years or more of education, and 20 (29%) had an income of up to two minimum wages (Table 1).

Table 1 - Sociodemographic Characteristics of Oncological Patients Rio Verde–GO, Brazil, 2021.

Variables	n	%
Gender		
Male	18	26.1
Female	51	73.9
Marital status		
Without a partner	28	40.6
With a partner	41	59.4
Religiousness		
Yes	55	79.7
No	14	20.3

House		
With family members	58	84.1
Alone	11	15.9
Schooling		
Illiterate	7	10.1
Up to 8 years	12	17.4
From 8 to 11 years	16	23.2
12 years or more	34	49.3
Income*		
Up to 1 minimum wage	12	17.4
One-Two minimum wages	20	29
Four- Five minimum wages	18	26.1
Five minimum wages or more	19	27.5

*Income = Minimum wage in effect in 2020 BRL 1,039.00;
Source: The authors (2021).

When evaluating the prevalence of anxiety and depression, the results indicated that 48 patients (69.6%, 95% CI: 58-79.7) had anxiety and 48 patients (69.6%, 95% CI: 58-79.7) had depression. Furthermore, it was found that 41 patients (59.4%, 95% CI: 47.8–71) presented the simultaneous presence of anxiety and depression.

The clinical aspects of oncological patients were analyzed and the results are presented in Table 2. Regarding anxiety, some symptoms showed significant association. Patients who reported nausea or vomiting ($p = 0.026$), headache ($p = 0.029$), abdominal pain ($p = 0.038$), and fatigue ($p = 0.010$) were associated with anxiety. Additionally, the treatment location ($p = 0.042$) and treatment adherence ($p = 0.040$) also showed significant associations with the presence of anxiety. Regarding depression, the time of diagnosis showed significant association ($p = 0.008$). The physical adverse effects significantly associated with depression were abdominal pain ($p = 0.008$), loss of appetite ($p = 0.004$), and asthenia ($p = 0.001$). Additionally, the treatment location also proved to be a variable associated with depression ($p < 0.001$). The simultaneous presence of anxiety and depression was associated with health insurance ($p = 0.008$), abdominal pain ($p = 0.010$), loss of appetite ($p = 0.001$), fatigue ($p = 0.042$), and treatment location ($p < 0.001$)..

Table 2 - Clinical characteristics and associations with anxiety and depression in oncological patients. Rio Verde–GO, Brazil, 2021.

Variables	Sample	Anxiety 48 (69.7) n (%)	Depression 48 (69.7) n (%)	Anxiety and depression 41 (59.4) n (%)
Time since diagnosis		0.982	**0.008***	0.096
Up to 5 years	36 (52.2)	25 (52.1)	20 (41.6)	18 (43.9)
6 years or more	33 (47.8)	23 (47.9)	28 (58.4)	23 (56.1)
Health plan		0.177	0.666	**0.008***
Yes	31 (44.9)	19 (39.5)	13 (27.1)	13 (31.7)
No	38 (55.1)	29 (60.5)	35 (72.9)	28 (68.3)

Sick leave	34 (49.3)	24 (50)	20 (41.6)	18 (43.9)
Type of cancer		0.839	0.566	1
Carcinoma	60 (87)	42 (87.5)	41 (85.5)	36 (87.8)
Others	9 (13)	6 (12.5)	7 (14.5)	5 (12.2)
Cancer stage		0.191	0.127	0.386
Stage I	9 (13)	5 (10.4)	7 (14.6)	5 (12.2)
Stage II	20 (29)	12 (25)	15 (31.3)	11 (26.8)
Stage III	22 (31.9)	16 (33.3)	13 (27.1)	13 (31.7)
Stage IV	14 (20.3)	13 (27.1)	12 (25)	11 (26.8)
Does not know	4 (5.8)	2 (4.2)	1 (2.1)	1 (2.4)
Type of treatment				
Chemotherapy	57 (82.6)	40 (83.3)	40 (83.3)	34 (82.9)
Radiotherapy	33 (47.8)	25 (52.1)	20 (41.7)	18 (43.9)
Immunotherapy	9 (13)	6 (12.5)	4 (8.3)	4 (9.8)
Surgery	50 (72.5)	36 (75)	37 (77.1)	32 (78)
Chemotherapy and radiotherapy	30 (43.5)	24 (50)	20 (41.7)	18 (43.9)
Chemotherapy and surgery	43 (62.3)	33 (68.8)	33 (68.8)	29 (70.7)
Symptoms				
Nausea and vomits	46 (66.7)	**36 (75)***	34 (70.8)	31 (75.6)
Headache	30 (43.5)	**25 (52.1)***	23 (47.9)	21 (51.2)
Muscle pain	33 (47.8)	23 (47.9)	20 (41.7)	17 (41.5)
Abdominal pain	22 (31.9)	**19 (39.6)***	**20 (41.7)***	**18 (43.9)***
Loss of appetite	41 (59.4)	31 (64.6)	**34 (70.8)***	**30 (73.2)***
Asthenia	53 (76.8)	40 (83.3)	**42 (87.5)***	**37 (90.2)***
Fatigue	53 (76.8)	**41 (85.4)***	39 (81.3)	**35 (85.4)***
Constipation	16 (23.2)	13 (27.1)	13 (27.1)	11 (26.8)
Dyspnea	12 (17.4)	9 (18.8)	8 (16.7)	8 (19.5)
Treatment location		**0.042***	**< 0.001***	**< 0.001**
Private network	24 (34.8)	13 (27.1)	8 (16.7)	7 (17.1)
Public network	45 (65.2)	35 (72.9)	40 (83.3)	34 (82.9)
Treatment adherence (Morisky Test)		**0.040***	0.729	0.187
Yes	21 (30.4)	11 (22.9)	14 (29.2)	10 (24.4)
No	48 (69.6)	37 (77.1)	34 (70.8)	31 (75.6)
Integrative practices		0.431	0.064	0.188
Yes	28 (40.6)	18 (37,5)	16 (33.3)	27 (65.9)
No	41 (59.4)	30 (62.5)	32 (66.7)	14 (34.1)

* = $p < 0,05$;

Source: The authors (2021).

The results of the multivariate logistic regression analysis demonstrate significant associations between the studied variables and the occurrence of anxiety and depression in cancer patients. The results demonstrate that the presence of fatigue is associated with a 4.36-fold increase in the likelihood of anxiety occurrence (OR = 4.36, 95% CI: 1.2–14.8; p = 0.019). Regarding depression, variables related to the duration of treatment remained

significant, where patients diagnosed with cancer for 6 years or more had 6.91 times higher odds of presenting depression (OR = 6.91, 95% CI: 1.3–35.5; p = 0.021). Patients who reported asthenia had 7.03 times higher odds of presenting depression compared to those who did not experience this physical adverse effect.

Regarding the treatment facility, patients from the public healthcare system had 25.89 times higher odds of presenting depression compared to those from the private sector (OR = 25.89, 95% CI: 5–132.3; p < 0.001) (Table 3).

Table 3 - Associations between clinical aspects and symptoms of anxiety and depression in cancer patients. Rio Verde–GO, Brazil, 2021.

Variables	ORa (IC95%)*	p
Anxiety		
Fatigue	4.36 (1.2 – 14.8)	0.019
Depression		
Time since diagnosis		
Up to 5 years	Reference	
6 years or more	6.91 (1.3 – 35.5)	0.021
Asthenia	7.03 (1.4 – 35)	0.017
Treatment location		
Private network	Reference	
Public network	25.89 (5 – 132.3)	<0.001
Anxiety and depression		
Asthenia	6.89 (1.69 – 27.98)	0.007
Treatment location		
Private network	Reference	
Public network	7.47 (2.25 – 24.7)	0.001

* = Adjusted odds ratio and 95% confidence interval.

Source: The authors (2021).

DISCUSSION

The results of this study demonstrate a high prevalence of symptoms of anxiety and depression among patients undergoing cancer treatment. Additionally, the research results advance the understanding of factors associated with anxiety, depression, and the coexistence of these symptoms, emphasizing both clinical aspects and adherence to prescribed treatment. It is worth noting that adherence to cancer treatment did not show a significant association with the presence of depression, anxiety, or the coexistence of these two conditions simultaneously.

Among the evaluated participants, it was found that 69.6% manifested clinical symptoms of anxiety, and the same proportion was observed regarding depression. These results reveal a significantly higher rate of anxiety and depression compared to previous studies that assessed cancer patients using the same evaluation instrument and scoring criteria. A study conducted in the interior of the state of Minas Gerais, Brazil, evaluated cancer patients undergoing chemotherapy treatment and identified a prevalence of 27.47% of patients with probable anxiety and 16.48% with probable depression[14]. Additionally, another study

conducted with cancer patients undergoing treatment at a private healthcare institution identified a prevalence of 21% for anxiety and depression among the evaluated patients[15].

In an international context, research results have identified wide variation in the prevalence of anxiety and depression among cancer patients. Studies report rates ranging from 17.6% to 47.9% for anxiety and 23.3% to 51.1% for depression among evaluated individuals[4,16]. Additionally, a systematic review and meta-analysis demonstrated a prevalence of 16.5% for depressive disorder and 9.8% for anxiety disorder in cancer patients[17], values substantially lower than those found in the present study. These data reinforce the importance of the results obtained in this study, which show a high prevalence of anxious and depressive symptoms among the evaluated cancer patients. Thus, these results demonstrate that mental health is an aspect that requires special attention in patients undergoing cancer treatment.

The scientific literature has provided evidence on various factors that can influence the development of anxiety and depression symptoms in cancer patients, including the type of cancer, malignancy grade, disease stage, and type of treatment.[4]. However, unlike the results found in the present study, a significant association between anxiety, depression, and these variables was not observed.

When assessing the adverse effects of cancer treatment, a significant association between fatigue and anxiety in cancer patients was observed. Fatigue is one of the most commonly experienced symptoms related to the oncological process by patients, described as a persistent sensation of tiredness or physical, emotional, and/or cognitive exhaustion disproportionate to the patient's level of activity. These findings are in line with a study conducted with breast cancer patients, which also identified an association between fatigue and anxiety[18]. This association may result from shared biological mechanisms, such as dysregulation of the Hypothalamic-Pituitary-Adrenal (HPA) axis. The imbalance in the functioning of the HPA axis is implicated in the occurrence of anxiety and fatigue symptoms in cancer patients[19].

The stress coping model also emerges as an important theory to explain the relationship between fatigue and anxiety. The theoretical model emphasizes that the diagnosis of cancer can result in symptoms of fatigue and anxiety due to the evaluation and coping with cancer by patients, as well as the experience of stressful events related to the oncological process[20]. In this sense, understanding the association between fatigue and anxiety can contribute to directing appropriate interventions for cancer patients.

Regarding depression, among the predictor variables analyzed, it was observed that patients with a diagnosis time equal to or greater than six years, those who reported asthenia as a symptom, and those who received care through the public health system were more likely to develop symptoms of depression.

The association between the time elapsed since cancer diagnosis and the presence of depressive symptoms is consistent with the results of a longitudinal study that demonstrated a significant presence of persistent depressive symptoms, as well as the late occurrence of the development of depressive symptoms[21]. In this sense, these results suggest that the impact of cancer diagnosis on patients' mental health may persist for a considerable period of time, or the inherent factors of the oncological treatment process may result in a higher risk for late-onset depression after diagnosis.

Astenia, characterized by generalized weakness, fatigue, or exhaustion without physical or mental effort, is a prevalent symptom among cancer patients[22], associated with higher odds of clinically significant depressive symptoms, and it also demonstrated an association with the occurrence of concurrent anxiety and depression. It is relevant to emphasize that asthenia and fatigue are distinct concepts, although fatigue is considered a dimension or symptom of asthenia[23].

In cancer patients, asthenia can be caused and influenced by various factors, such as anxiety and depression[24]. Patients who present with both asthenia and depression share certain characteristics such as loss of interest or pleasure, psychomotor retardation, loss of energy, and difficulty concentrating. Additionally, asthenia can also be related to anxiety, manifesting through symptoms such as difficulty concentrating and indecision[25].

Given this issue, it is of utmost importance that cancer patients receive appropriate treatment to address the treatable causes of asthenia. In monitoring these patients, healthcare professionals should consider the physiological burden of treatment, including the impacts of chemotherapy and radiotherapy, which can be determinants of mental and physical distress in individuals.

The results of the present study highlight a significant association between the type of cancer treatment service and the presence of depressive symptoms, as well as concurrent anxiety and depression. Patients treated by public services showed a 25.89 times higher chance of presenting depression and a 7.47 times higher chance of presenting concurrent anxiety and depression compared to those treated by private services. These results may be related to the lack of access to other services recommended by the oncological care network and the difficulty in accessing basic public health services intended for cancer patient care[26]. Low accessibility to various oncological patient monitoring devices has been associated with inadequate treatment, worse prognosis, and poorer quality of life[26].

These results highlight the need to implement a patient-centered care network for chronic disease, aiming to provide comprehensive interventional actions to address both physical and mental aspects and to address care fragmentation. A crucial challenge in this regard is to ensure that cancer care services provided by the Unified Health System (SUS) incorporate psychosocial support services, aiming at early identification of clinically significant symptoms of anxiety and depression[27]. The results of a recent scoping review indicated that psychosocial support services offered to cancer patients improve well-being and satisfactorily address the psychosocial issues faced by these patients[28].

The present study advances the understanding of the association between clinical aspects, adverse effects of oncological treatment, treatment adherence, and symptoms of anxiety and depression among cancer patients. The strengths of this study include the use of standardized assessment instruments for evaluating anxiety, depression, and adherence to oncological treatment, as well as the application of multivariate statistics to identify factors associated with anxiety and depression. However, the results need to be interpreted in light of some limitations. The cross-sectional design precludes identifying the directionality of the explored relationships and making causal inferences. The online collection of the HADS instrument, due to the pandemic, and the subjective assessment of fatigue and asthenia introduce biases. The small sample size and convenience in selection prevent generalizations. Longitudinal studies, more representative and diverse samples are recommended to better understand the impact of oncological treatment on mental health.

Among the practical implications discussed, the need to incorporate psychosocial support services into the oncological care network stands out, as well as introducing low-density actions that influence symptoms of anxiety and depression in healthcare units. In this context, mindfulness practices have stood out as a low-density intervention that can be implemented in healthcare services, due to their significant effects on the mental health aspects of practitioners[29]. Additionally, healthcare professionals providing assistance to cancer patients should adhere to protocols aimed at conducting screening and prevention actions for mental health-related conditions, such as anxiety and depression disorders, and structure a referral network for supportive care.

CONCLUSION

The results of the present study demonstrate a high prevalence of clinically significant symptoms of anxiety and depression among cancer patients. Anxiety was associated with the symptom of fatigue resulting from oncological treatment. Regarding depression, the time since cancer diagnosis, asthenia, and the treatment facility were variables significantly associated.

Considering the results demonstrated in the present study, it is emphasized the need for psychosocial support services for cancer patients, providing necessary spaces for the reduction of anxiety and depression symptoms aiming to contribute to the patients' quality of life.

REFERENCES

1. Walker ZJ, Xue S, Jones MP, Ravindran AV. Depression, anxiety, and other mental disorders in patients with cancer in low- and lower-middle–income countries: a systematic review and meta-analysis. JCO Glob Oncol [Internet]. 2021 [cited on 2023 Jan. 22;(7):1233–50. Available from: https://pubmed.ncbi.nlm.nih.gov/34343029

2. Habimana S, Biracyaza E, Mpunga T, Nsabimana E, Kayitesi F, Nzamwita P, et al. Prevalence and associated factors of depression and anxiety among patients with cancer seeking treatment at the Butaro Cancer Center of Excellence in Rwanda. Frontiers Public Health [Internet]. 2023 [cited 2023 Jul 28];11. Available from: https://www.frontiersin.org/articles/10.3389/fpubh.2023.972360

3. Naser AY, Hameed AN, Mustafa N, Alwafi H, Dahmas EZ, Alyami HS, et al. Depression and anxiety in patients with cancer: a cross-sectional study. Front. Psychol. [Internet]. 2021 [cited 2023 Jun 13];12. Available from: https://www.frontiersin.org/articles/10.3389/fpsyg.2021.585534

4. American Psychiatric Association. Diagnostic and statistical manual of mental disorders - DSM-5. 5th ed. Arlington, VA: American Psychiatric Association; 2013.

5. Salvetti M de G, Machado CSP, Donato SCT, Silva AM da. Prevalence of symptoms and quality of life of cancer patients. Rev Bras Enferm [Internet]. 2020 [cited 2023 Jan 21];73:e20180287. Available from: https://doi.org/10.1590/0034-7167-2018-0287

6. Henson LA, Maddocks M, Evans C, Davidson M, Hicks S, Higginson IJ. Palliative care and the management of common distressing symptoms in advanced cancer: pain, breathlessness, nausea and vomiting, and fatigue. J Clin Oncol [Internet]. 2020;38(9):905–14. Available from: https://pubmed.ncbi.nlm.nih.gov/32023162/

7. Niedzwiedz CL, Knifton L, Robb KA, Katikireddi SV, Smith DJ. Depression and anxiety among people living with and beyond cancer: a growing clinical and research priority. BMC Cancer [Internet]. 2019 [cited 2023 Jan 20];19(1):943. Available from: https://doi.org/10.1186/s12885-019-6181-4

8. Su Y-R, Yu X-P, Huang L-Q, Xie L, Zha J-S. Factors influencing postoperative anxiety and depression following Iodine-131 treatment in patients with differentiated thyroid cancer: a cross-sectional study. World J. Psychiatry [Internet]. 2023 [cited 2023 Jan 22];13(7):486–94. Available from: https://www.wjgnet.com/2220-3206/full/v13/i7/486.htm

9. Santos M dos, Lange M, Gervais R, Clarisse B, Capel A, Barillet M, et al. Impact of anxio-depressive symptoms and cognitive function on oral anticancer therapies adherence. Support Care Cancer [Internet] 2019 [cited 2023 Jun 20];27(9):3573–81. Available from: https://doi.org/10.1007/s00520-019-4644-4

10. Lee ARYB, Leong I, Lau G, Tan AW, Man Ho RC, Hui Ho CS, et al. Depression and anxiety in older adults with cancer: systematic review and meta-summary of risk, protective and exacerbating factors. Gen

Hosp Psychiatry [Internet]. 2023 [cited 2023 Jan 21];81:32–42. Available from: https://doi.org/10.1016/j.genhosppsych.2023.01.008

11. Alwhaibi M, AlRuthia Y, Sales I. The impact of depression and anxiety on adult cancer patients' health-related quality of life. J Clin Med [Internet]. 2023 [cited 2023 Jan 20];12(6):2196. Available from: https://doi.org/10.3390/jcm12062196

12. Botega NJ, Bio MR, Zomignani, MA, Garcia Júnior C, Pereira WAB. Transtornos do humor em enfermaria de clínica médica e validação de escala de medida (HAD) de ansiedade e depressão. Rev Saúde Pública [Internet]. 1995 [cited 2023 Oct 02];29(5):359-63. Available from: https://doi.org/10.1590/S0034-89101995000500004.

13. Ben AJ, Neumann CR, Mengue SS. Teste de Morisky-Green e Brief Medication Questionnaire para avaliar adesão a medicamentos. Rev Saude Publica [Internet]. 2012 [cited 2023 Out 02];46(2):279–89. Available from: https://doi.org/10.1590/S0034-89102012005000013

14. Leal FR, Sousa MC, Fonseca LE, Tolentino B, Melo CCA, Lourenço JP de S, et al. Prevalência de depressão e ansiedade e sua relação com esperança em pacientes oncológicos em tratamento quimioterápico. Rev Med Minas Gerais [Internet]. 2021 [cited 2023 Jan 20];31(0):61–66. Available from: https://rmmg.org/artigo/detalhes/3812

15. Bergerot CD, Razavi M, Philip EJ, Bergerot PG, Buso MM, Clark KL, et al. Association between hospital anxiety and depression scale and problem-related distress in patients with cancer in a Brazilian private institution. Psycho-Oncology [Internet]. 2021 [cited 2023 Jan 22];30(3):296–302. Available from: https://doi.org/10.1002/pon.5571

16. Pi H-M, Zhang S-Y, Zheng R-J. COVID-19-related knowledge and practices of cancer patients and their anxiety and depression during the early surge phase of the pandemic: a cross-sectional Online Survey. Disaster Medicine and Public Health Preparedness [Internet]. 2023 [cited 2023 Jan 20];17:e73. Available from: https://doi.org/10.1017/dmp.2021.341

17. Mitchell AJ, Chan M, Bhatti H, Halton M, Grassi L, Johansen C, et al. Prevalence of depression, anxiety, and adjustment disorder in oncological, haematological, and palliative-care settings: a meta-analysis of 94 interview-based studies. Lancet Oncol [Internet]. 2011 [cited 2023 June 20];12(2):160–74. Available from: https://doi.org/10.1016/S1470-2045(11)70002-X

18. Williams AM, Khan CP, Heckler CE, Barton DL, Ontko M, Geer J, et al. Fatigue, anxiety, and quality of life in breast cancer patients compared to non-cancer controls: a nationwide longitudinal analysis. Breast Cancer Res Treat [Internet]. 2021 [cited 2023 June 20];187(1):275–285. Available from: https://doi.org/10.1007/s10549-020-06067-6

19. Li H, Marsland AL, Conley YP, Sereika SM, Bender CM. Genes Involved in the HPA axis and the symptom cluster of fatigue, depressive symptoms, and anxiety in women with breast cancer during 18 months of adjuvant therapy. Biol Res Nurs [Internet]. 2020 [cited 2023 Jan 20];22(2):277–86. Available from: https://doi.org/10.1177/1099800419899727

20. Schellekens MPJ, Wolvers MDJ, Schroevers MJ, Bootsma TI, Cramer AOJ, Lee ML van der. Exploring the interconnectedness of fatigue, depression, anxiety and potential risk and protective factors in cancer patients: a network approach. J Behav Med [Internet]. 2020 [cited 2023 Jan 21];43(4):553–563. Available from: https://doi.org/10.1007/s10865-019-00084-7

21. Charles C, Bardet A, Larive A, Gorwood P, Ramoz N,Thomas E, et al. Characterization of depressive symptoms trajectories after breast cancer diagnosis in women in France. JAMA Network Open [Internet]. 2022 [cited 2023 Jan 22];5(4):e225118. Available from: https://doi.org/10.1001/jamanetworkopen.2022.5118

22. Peixoto da Silva S, Santos JMO, Costa e Silva MP, Gil da Costa RM, Medeiros R. Cancer cachexia and its pathophysiology: links with sarcopenia, anorexia and asthenia. J. Cachexia Sarcopenia Muscle [Internet]. 2020 [cited 2023 June 19];11(3):619–635. Available from: https://doi.org/10.1002/jcsm.12528

23. Scialla SJ, Cole RP, Bednarz L. Redefining cancer-related asthenia-fatigue syndrome. J Palliat Med [Internet]. 2006 [cited 2023 June 22];9(4):866–872. Available from: https://doi.org/10.1089/jpm.2006.9.866

24. González Barón M. [Asthenia in cancer]. An R Acad Nac Med (Madr) [Internet]. 2005 [cited 2023 June 21];122(3):577–588;588-590. Available from: https://pubmed.ncbi.nlm.nih.gov/16524244/

25. Hinshaw DB, Carnahan JM, Johnson DL. Depression, anxiety, and asthenia in advanced illness. J. Am. Coll. Surg [Internet]. 2002 [cited 2023 Jan 22];195(2):271–277. Available from: https://doi.org/10.1016/s1072-7515(02)01191-2

26. Fonseca B de P, Albuquerque PC, Saldanha R de F, Zicker F. Geographic accessibility to cancer treatment in Brazil: a network analysis. The Lancet Regional Health – Americas [Internet] 2022 [cited 2023 June 15];7. Available from: https://doi.org/10.1016/j.lana.2021.100153

27. Oncology TL. Provision of mental health care for patients with cancer. Lancet Oncol. [Internet]. 2021 [cited 2023 June 18];22(9):1199. Available from: https://doi.org/10.1016/S1470-2045(21)00480-0

28. Lingens SP, Schulz H, Bleich C. Evaluations of psychosocial cancer support services: a scoping review. PLoS One [Internet]. 2021 [cited 2023 June 22];16(5):e0251126. Available from: https://doi.org/10.1371/journal.pone.0251126

29. Gherardi-Donato EC da S, Díaz-Serrano KV, Barbosa MR, Fernandes MN de F, Gonçalves-Ferri WA,Camargo Júnior EB, et al. The impact of an online mindfulness-based practice program on the mental health of Brazilian nurses during the COVID-19 Pandemic. Int. J. Environ. Res. Public Health. [Internet]. 2023 [cited 2023 Jun 21];20(4):3666. Available from: https://doi.org/10.3390/ijerph20043666

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Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work - **Machado LC de S, Guimarães IM de O, Leão LC da S, Silva GG, Camargo Júnior EB**. Drafting the work or revising it critically for important intellectual content - **Machado LC de S, Guimarães IM de O, Leão LC da S, Silva GG, Camargo Júnior EB.** Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved - **Machado LC de S, Guimarães IM de O, Leão LC da S, Silva GG, Camargo Júnior EB**. All authors approved the final version of the text.

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