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ORIGINAL PAPERS

# The Palliative Care in Patients with Oncological Diseases - a New Medical and Therapeutic Approach

Catalina FLORESCU<sup>1,2\*</sup>, Octavian VASILIU<sup>2,3</sup>, Dan PRELIPCEANU<sup>4</sup>

## Abstract

The life expectancy increase in patients with cancer requires more attention to the quality of life and mental health status of this population. The aim of the current research is to change the perspective on the evolution of oncological disorders, regardless of their localization, stage, or complications, in terms of survival chances, by exploring the essential role of psychiatric medication on the core physical and mental health-related outcomes. This is a prospective, naturalistic study, that enrolled 284 oncological patients, distributed in three groups, diagnosed with lung cancer, metastatic lung cancer or other types of cancer, who received psychotropic medication for their mood symptoms, and changes in the primary outcomes (i.e., patients' mood and pain, and quality of the mental status of the caregivers) were monitored for six months. The results reflected the efficacy of psychopharmacological intervention initiated early after the diagnosis of cancer was formulated, according to the scores on the Integrated Palliative Care Outcome Scale (IPOS). The severity of pain, the intensity of depression, and anxiety in family members decreased significantly during six months of the standard-of-care psychotropic medication administered for depressive disorders. In the long term, the objective is to change the oncological protocols to accommodate an early introduction of psychiatric medication in the evolution of oncological disease, even in the context of moderate physical symptoms with uncertain etiology, which causes a deterioration in overall functionality and quality of life. A new notion, created by the first author, is supported by this research, i.e., "long-term oncological survivorship care," which will replace the former concept of palliative care, which refers to "end-of-life care," or "comfort care," in relation to the oncological context.

**Keywords:** palliative care, depression, anxiety, pain, quality of life, oncological disease.

## Rezumat

Creșterea speranței de viață la pacienții cu afecțiuni oncologice necesită o atenție sporită la calitatea vieții și starea de sănătate mintală a acestora. Scopul cercetării prezente este de a schimba perspectiva asupra evoluției bolilor maligne, indiferent de localizarea, stadiul sau complicațiile acestora, în ceea ce privește șansele de supraviețuire a pacienților, prin explorarea rolului esențial al medicației psihiatrice asupra sănătății fizice și psihice. Studiul de față are un design prospectiv, naturalist și a înrolat 284 de pacienți

<sup>1</sup>"Prof. Dr. Alexandru Trestioreanu" Oncological Institute, Integrated Outpatient Department, 252 Fundeni Avenue, District 2, Bucharest, 222328, Romania

<sup>2</sup>"Dr. Carol Davila" Central Military Emergency University Hospital, Psychiatry Department, 134 Calea Plevnei Street, District 1, Bucharest, 010825, Romania

<sup>3</sup>Lecturer, University of Medicine and Pharmacy "Dr. Carol Davila", Bucharest, 8 Eroii Sanitari Blvd., 050474, Romania

<sup>4</sup>Professor, University of Medicine and Pharmacy "Dr. Carol Davila", Bucharest, 8 Eroii Sanitari Blvd., 050474, Romania

### \*Corresponding author:

**Catalina FLORESCU**, "Prof. Dr. Alexandru Trestioreanu" Oncological Institute, Bucharest, Integrated Outpatient Department, 252 Fundeni Avenue, District 2, Bucharest, 022328, Romania

**E-mail:** catalinaflorescu03@gmail.com

oncologici, repartizați în trei grupuri, respectiv persoane diagnosticate cu cancer pulmonar, cancer pulmonar metastatic sau alte tipuri de cancer, care au primit medicamente psihotrope pentru simptomele lor afective. Modificările variabilelor principale (de ex., dispoziția depresivă și durerea pacienților, precum și calitatea stării mentale a îngrijitorilor) au fost monitorizate timp de șase luni. Rezultatele au reflectat eficacitatea intervenției psihofarmacologice inițiate precoce după formularea diagnosticului de cancer, în conformitate cu scorurile înregistrate pe Scala de Evaluare a Îngrijirilor Paliative Integrate (IPOS). Severitatea durerii, intensitatea depresiei și anxietatea membrilor familiei au scăzut semnificativ pe parcursul a șase luni de administrare a medicației psihotrope conform protocoalelor standard pentru depresia majoră. Pe termen lung, se urmărește modificarea protocoalelor pentru a permite introducerea precoce a medicației psihotrope în evoluția bolii oncologice, chiar și în contextul unor simptome fizice moderate, cu etiologie incertă, care determină o deteriorare a funcționalității generale și a calității vieții. Un nou concept, creat de primul autor al acestui articol, este susținut de cercetarea prezentă, respectiv „îngrijirea de lungă supraviețuire oncologică”, care va înlocui fostul concept de îngrijire paliativă, care se referă la „îngrijirea de sfârșit al vieții” sau „îngrijirea de confort”, în raport cu contextul oncologic.

**Cuvinte cheie:** paliatie, depresie, anxietate, durere, calitatea vieții, afecțiuni oncologice

## INTRODUCTION

The present study is part of a larger research project dedicated to exploring different groups of oncological pathologies, looking for similarities and differences in their evolution. The aim of this project is to modify the psychiatric perspective on the case management of oncological patients. The rationale for this exploration is based on theoretical and pragmatic aspects derived from the literature search and clinical practice.

Firstly, it is estimated that more than 30% of oncological patients are facing, at one time after the diagnosis of cancer was made, psychiatric disorder(s), such as confusional episodes, mood disorders, anxiety, sexual dysfunctions, sleep disorders, all of which have a significant impact on these patients' overall daily functioning and quality of life<sup>1-5</sup>. In the case of advanced cancer, the situation is even more complicated, and about 50% of patients meet the criteria for a psychiatric disorder, mainly adjustment disorders and major depression<sup>2</sup>.

To add more to the complexity of the Psychiatry-Oncology interface, the risk of suicide in patients with cancer is constantly being reported by medical personnel involved in the case management of this pathology<sup>6</sup>. According to a survey (N=61 oncology healthcare professionals), the majority of oncologists and nurses working in the same field acknowledged the presence of at least one patient who had committed suicide during their careers and/or had suicidal ideation [6]. Another important health problem in oncologic patients that requires the attention of a psychiatrist is

the high risk of substance use disorders. Based on the results of a cross-sectional study, the overall prevalence of active substance use disorders within the last year was 4% in a population of 6101 adult cancer survivors<sup>7</sup>. While alcohol use disorder was the most frequently reported pathology within this category, several types of malignancies were also more predisposed to developing substance dependence, i.e., head and neck cancer, esophageal and gastric cancer<sup>7</sup>.

Secondly, the onset of new psychiatric disorders in patients with cancer (N=6292 male and 4455 female) has been associated with a significant increase in mortality risk in both genders (HR=1.44-1.47), compared to patients with cancer without psychiatric disorders<sup>8</sup>. Another important aspect, and of relevance for the current research project, is that patients who received psychiatric treatment within 30 days of diagnosis of the psychiatric disorder(s), had a lower risk of cancer-related mortality (HR=0.71-0.73)<sup>8</sup>.

Thirdly, a thorough analysis of the mental health status of patients with cancer became a necessity due to the increased survival rates of this population<sup>8</sup>. Therefore, an interdisciplinary approach, with the participation of mental health specialists (i.e., psychiatrists, clinical psychologists, psychotherapists) to the oncological patient should not be an exception, but rather the rule for the case management in patients with cancer. Exploring and adequately approaching sensitive topics, like the psychological stress associated with the awareness of a cancer diagnosis, fear of death, functional impairments, the impact of the adverse events of

chemotherapy or radiotherapy on the quality of daily life, negative consequences on the self-image of possible mutilating surgery, lifestyle changes, etc., are objectives for a thorough and continuous psychiatric and psychological evaluation<sup>8-11</sup>.

## MATERIAL AND METHOD

The study comprises 284 oncological patients, divided into three groups: 114 patients with primary lung cancer (group 1), 75 patients with metastatic lung cancer (group 2), and 95 patients with other types of cancer, excluding lung or secondary lung cancer (group 3). The patients included in the study are patients of the Oncological Institute "Prof. Dr. Alexandru Trestioreanu" from Bucharest.

The study's inclusion criteria were the existence of a histopathological diagnosis confirming the presence of an oncological diagnosis, age over 18, ability to sign informed consent, and a diagnosis of major depression. Exclusion criteria were related to the age of less than 18, unwillingness to be evaluated by a psychiatrist, remitted oncological diseases, and lack of ability to sign informed consent.

Patients were evaluated longitudinally, at study entry (baseline visit), at one month, and after six months. A clinical psychiatric assessment was performed each time, and the Integrated Palliative Care Outcome Scale (IPOS) was applied, which is an instrument designed to assess three distinct dimensions: physical symptoms, emotional symptoms, and communication problems<sup>12</sup>. According to the IPOS, physical symptoms are rated progressively from no symptoms to overwhelming symptoms. We have chosen for the present study the most prominent, devastating physical symptom experienced by the cancer patient, namely *pain*. Emotional symptoms are represented by patient anxiety and depression, as well as familial anxiety, and these are scored from „not at all” to „always”. Feelings of peace are also assessed through the use of IPOS, from „always” to „not at all”. Communication with friends and family and the need for accurate medical information are also included in the IPOS.

All recruited patients received standard-of-care psychotropic medication for the diagnosis of major depression (either first episode or recurrent major depression) for the six months of the study. The diagnosis was confirmed by a senior psychiatrist, and the treatment was monitored for efficacy and tolerability throughout the duration of the study. Antidepressants and adjuvant

agents were prescribed in flexible doses, according to the dosing intervals mentioned in the summary of product characteristics. In case of intolerance, the psychopharmacological agents were switched to another drug with antidepressant activity.

In this study, we focused on the correlation between certain oncological symptoms, patient depression, and their correlation with familial anxiety.

### Statistical analyses

The database and statistical analyses were performed using the 23rd version of the Statistical Package for Social Sciences (SPSS)<sup>13</sup>. Ordinal and nominal (dichotomous) data are presented as absolute frequencies (n) and percentages (%), both in tabular and graphical form.

Quantitative variables, measured at interval level, such as patients' age, were re-coded and transformed into ordinal variables to allow a comparative analysis of the subgroups created.

The methods and techniques used for comparative analysis are specific to the type of data, namely the McNemar test and the Z-Test (for nominal variables from the intra-group longitudinal analysis) and the Chi-square, Fisher, and Mann-Whitney U Test (for comparison, association testing, and inter-group analysis of ordinal variables).

All differences were considered statistically significant at a significance threshold of 95% (p-value <0.05).

## RESULTS AND DISCUSSION

### Age as a variable of the risk for cancer

The risk of cancer varies according to the age of the patients. While the sequential patterns of aging cannot be altered, there are certain factors that act at different ages that can be modified. Middle age is the period when cancer incidence rates start to rise.

In young people, the appearance of cancer seems to be determined by the involvement of special factors, which are no longer evident at older ages<sup>14</sup>.

Oncological pathologies are influenced by the action of carcinogenic agents; the higher their concentration, the greater the probability of the appearance of mutations with carcinogenic effects. There is an increasing trend in the incidence of cancer in all age groups<sup>14,15</sup>. Deviations from the hypothetical lines of evolution depend on how the stages of the carcinogenic process can be influenced so that they do not follow the previous evolution<sup>15</sup>.

Analyzing the data of the three groups shows an increase in the incidence of cancer in all of them in the age range 50-79 years, with a weight of 86% for lung and other cancers and 74% for metastatic lung cancer (Table 1).

**Table 1.** The age distribution of patients in the three groups analyzed

General features	Group 1 (lung cancer, N=114) n, %	Group 2 (metastatic lung cancer N=75) n, %	Group 3 (other types of cancer, N=95) n, %
Age (categories)			
20-29 years old	0	0	2 (2%)
30-39 years	3 (3%)	2 (3%)	4 (4%)
40-49 years	7 (6%)	14 (19%)	7 (7%)
50-59 years	24 (21%)	15 (20%)	26 (28%)
60-69 years	42 (37%)	28 (37%)	34 (36%)
70-79 years	32 (28%)	13 (17%)	21 (22%)
80-89 years	6 (5%)	3 (4%)	1 (1%)
Age (meta-categories)			
20-39 years old	3 (3%)	2 (3%)	6 (6%)
40-49 years	7 (6%)	14 (19%)	7 (7%)
50-79 years	98 (86%)	56 (74%)	81 (86%)
80-89 years	6 (5%)	3 (4%)	1 (1%)

This difference stems from the fact that in the metastatic lung cancer group, the incidence is significantly higher than the other two groups in the 40-49 age group. Statistical analysis shows a homogeneity of cancer incidence in the 50-79 age group (differences between groups are not statistically significant,  $p > 0.05$  for all comparisons).

**The impact of gender on the oncological risk**

Gender differences in the occurrence of cancer involve genetic and epigenetic mechanisms that may influence a person’s vulnerability to this pathology. Some cancers occur predominantly in males, such as bladder, colon, skin, liver, brain, or hematological cancers.<sup>16,17</sup> Sex hormones can influence the development of certain cancers, such as breast or prostate cancer<sup>18-20</sup>. The incidence of lung cancer is higher in males and is influenced mainly by smoking<sup>21</sup>. In a study that evaluated the role of genetic variation and smoking in the onset of lung cancer (N=345794 European ancestry participants), it appeared that while both factors were independently associated with a higher risk for this pathology, the impact of smoking was more significant<sup>21</sup>. The same study concluded that smoking cessation would prevent more than 76% of new lung cancers in the explored population<sup>21</sup>.

**Table 2.** Gender distribution of patients in the three groups analyzed

General features	Group 1 (lung cancer, N=114) n, %	Group 2 (metastatic lung cancer N=75) n, %	Group 3 (other types of cancer, N=95) n, %
Gender			
M	77 (68%)	34 (45%)	27 (28%)
F	37 (32%)	41 (55%)	68 (72%)

The comparative study between the three groups shows that the incidence of cancer is statistically significantly higher among men, the ratio being about 2:1, in the group of patients with lung cancer ( $p=0.032$ ) (Table 2). In the group of patients with other types of cancer, the incidence was significantly higher among women ( $p=0.017$ ). In the group of patients with lung metastases, no significant difference in incidence according to gender was identified.

**Physical symptoms in the study group- the significance of the pain**

*Pain* is one of the most common and dreaded consequences of cancer. Pain varies according to the primary location of the neoplasia and the extent of cancer progression<sup>22</sup>. The tendency of clinicians to focus on disease management rather than collateral symptoms and concern about opioid dependence sometimes leads to poor pain management. Sometimes, patients, by not following recommended therapy, also contribute to the maintenance of pain.<sup>23</sup>

Comparing pain intensity at baseline assessment, severe and overwhelming pain was found to be present in a significantly higher proportion in the metastatic lung cancer group (51% in this group, compared to 29% and 22% respectively in the lung and other cancer groups,  $p=0.041$  and  $p=0.026$  respectively) (Table 3).

Analyzing pain intensity at the 1-month and 6-month visits, respectively, we find that it progressively decreases in all three groups (statistical analysis showed statistically significant differences in all categories of intensity, except the last one - “overwhelming pain”).

However, even at the last assessment (after 6 months), in the metastatic lung cancer group, severe and overwhelming pain was present in 20%, compared to 3% in the lung and other cancer groups (statistically significant differences,  $p=0.018$ ).

**Table 3.** Pain intensity in the three analysis groups (initial, 1-month, and 6-month visits):

Group 1 (lung cancer, N=114)	Pain intensity				
	Absence of pain	Mild pain	Moderate pain	Severe pain	Overwhelming pain
Initial evaluation	16 (14%)	19 (17%)	50 (44%)	28 (24%)	1 (1%)
1-month evaluation	16 (14%)	43 (38%)	41 (36%)	12 (10%)	2 (2%)
6-month evaluation	37 (32%)	51 (45%)	23 (20%)	2 (2%)	1 (1%)
Group 2 (metastatic lung cancer, N=75)	Pain intensity				
	Absence of pain	Mild pain	Moderate pain	Severe pain	Overwhelming pain
Initial evaluation	4 (5%)	8 (11%)	25 (33%)	33 (44%)	5 (7%)
1-month evaluation	3 (4%)	26 (34%)	35 (47%)	9 (12%)	2 (3%)
6-month evaluation	12 (16%)	42 (56%)	6 (8%)	8 (11%)	7 (9%)
Group 3 (other types of cancer, N=95)	Pain intensity				
	Absence of pain	Mild pain	Moderate pain	Severe pain	Overwhelming pain
Initial evaluation	13 (14%)	15 (16%)	45 (47%)	19 (20%)	3 (3%)
1-month evaluation	13 (14%)	54 (57%)	22 (23%)	6 (6%)	0 (0%)
6-month evaluation	33 (35%)	43 (45%)	16 (17%)	2 (2%)	1 (1%)

### Emotional symptoms

*Depression*, like anxiety, can be related to the communication of the diagnosis but also to certain new events in the context of the management of oncological problems<sup>24</sup>. Depression and anxiety have a negative impact on the evolution of the disease and the quality of life<sup>25-27</sup>. In a study that included 1712 adult patients with cancer, the presence of comorbid depression and anxiety led to the lowest mean scores of physical and mental components of the SF-12, an instrument assessing the health-related quality of life, compared to patients in other groups<sup>26</sup>.

Analyzing patients' depression at baseline, an „overwhelming” level of depression was found to be present in a significantly higher proportion in the lung cancer and metastatic lung cancer patient groups (26% and 29%, compared to 14% in the other cancer group,  $p=0.047$ ). „Severe” depression is present in relatively similar proportions, between 61% and 49%, in all groups analyzed (differences between them were not statistically significant). „Moderate” depression is significantly lower in the metastatic lung cancer group (9% versus 19% and 20% in the other groups,  $p=0.048$ ). Absence of depression and mild depression are present in very small, similar proportions in all groups analyzed (between 0 and

5 patients, data not statistically comparable).

At the 6-month assessment, in all analyzed groups, „overwhelming” depression did not decrease significantly (although it has a significant decrease at the 1-month assessment, at the 6-month assessment it returns to weights relatively close to the initial assessment) and the lack of depression showed a statistically significant increase only in the group of lung cancer patients (from 1% to 21%,  $p<0.001$ ) (Table 4).

As for „severe” depression, there is a significant decrease in its proportion - the percentages „migrate” to the lower categories („moderate” and „mild” depression). In the group of patients with lung cancer, „severe” depression decreases from 49% to 16%, „moderate” depression decreases from 20% to 12% and „mild” depression increases from 4% to 31%. In the group of metastatic lung cancer patients, „severe” depression decreases from 59% to 12%, „moderate” depression increases significantly from 9% to 41% and „mild” depression increases from 0% to 28%. Lastly, in the group of patients with other types of cancer, „severe” depression decreases significantly from 61% to 12%, „moderate” depression increases from 19% to 42%, and „mild” depression increases from 1% to 33%.

**Table 4.** The intensity of patient depression (determined by IPOS) in the three analysis groups (initial, 1-month, and 6-month visits):

Group 1 (lung cancer, N=114)	Patient depression				
	Absence of depression	Mild depression	Moderate depression	Severe depression	Overwhelming depression
Initial evaluation	1 (1%)	5 (4%)	23 (20%)	56 (49%)	29 (26%)
1-month evaluation	2 (2%)	25 (22%)	36 (31%)	41 (36%)	10 (9%)
6-month evaluation	24 (21%)	36 (31%)	13 (12%)	18 (16%)	23 (20%)
Group 2 (metastatic lung cancer, N=75)	Patient depression				
	Absence of depression	Mild depression	Moderate depression	Severe depression	Very severe depression
Initial evaluation	2 (3%)	0 (0%)	7 (9%)	44 (59%)	22 (29%)
1-month evaluation	0 (0%)	4 (5%)	33 (44%)	32 (43%)	6 (8%)
6-month evaluation	0 (0%)	21 (28%)	31 (41%)	9 (12%)	14 (19%)
Group 3 (other types of cancer, N=95)	Patient depression				
	Absence of depression	Mild depression	Moderate depression	Severe depression	Very severe depression
Initial evaluation		5 (5%)	1 (1%)	18 (19%)	58 (61%)
1-month evaluation		0 (0%)	11 (12%)	42 (44%)	37 (39%)
6-month evaluation		1 (1%)	32 (33%)	40 (42%)	11 (12%)

**Evaluation of anxiety in family members**

Caregivers and family members of cancer patients have multiple emotional needs, which increase as the stage of the cancer disease progresses. Levels of anxiety and depression in family members, especially in advanced stages, are higher than in the general population [28-30].

Analyzing the anxiety of patients’ families at the baseline, it is found that the anxiety present “always” has a significantly higher proportion in the lung cancer group (20% compared to 16% in the metastatic lung cancer group and 11% in the other cancer group,  $p=0.048$  for the second comparison) (Table 5). Severe anxiety, present “much of the time” has relatively similar weights, between 64% and 50%, in all analyzed groups (differences are not statistically significant). For the other degrees of anxiety (moderate - quantified “sometimes”, mild - quantified “occasionally” or absent - quantified “not at all”) there are no statistically significant differences between the analyzed groups, and the highest weights are present for moderate anxiety, followed by mild anxiety and then the absence of anxiety (where these are almost zero).

At the 6-month visit, in all analyzed groups, anxiety present “always” did not decrease significantly

(although it had a visible decrease at the 1-month evaluation, at the 6-month evaluation it returned to relatively close weights to the baseline) and the absence of anxiety shows a statistically significant increase only in the group of lung cancer patients (from 2% to 22%,  $p<0.001$ ).

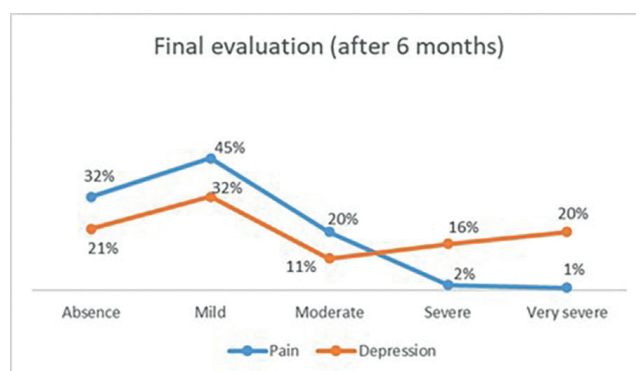
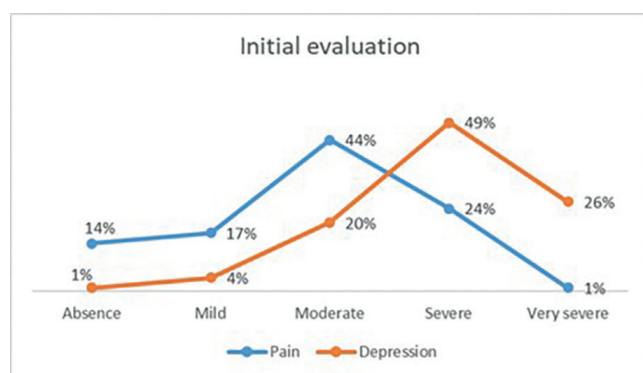
Regarding severe anxiety with a frequency determined as “most of the time”, there is a significant decrease in its weight, and the percentages “migrate” to the lower categories (moderate and mild anxiety). Therefore, in the group of lung cancer patients, severe anxiety decreased from 50% to 17% ( $p=0.012$ ), moderate anxiety decreased from 22% to 14% and mild anxiety increased from 6% to 30% ( $p=0.029$ ), while in the group of patients with metastatic lung cancer, severe anxiety decreases from 57% to 11% ( $p<0.001$ ), moderate anxiety increased significantly from 17% to 37% ( $p=0.032$ ) and mild anxiety increased from 7% to 33% ( $p<0.001$ ). Lastly, in the group of patients with other types of cancer, severe anxiety significantly decreased from 64% to 12% ( $p<0.001$ ), moderate anxiety increased from 18% to 43%, and mild anxiety increased from 3% to 32% ( $p<0.001$ ).

**Tables 5.** The intensity of patient’s relatives’ anxiety (IPOS) in the three analysis groups (initial, 1-month, and 6-month visits):

Group 1 (lung cancer, N=114)	Anxiety of patients’ relatives				
	Absent	Occasional	Rarely	Most of the time	Yes, always
Initial evaluation	2 (2%)	7 (6%)	25 (22%)	57 (50%)	23 (20%)
1-month evaluation	4 (4%)	21 (18%)	47 (41%)	30 (26%)	12 (11%)
6-month evaluation	25 (22%)	34 (30%)	16 (14%)	20 (17%)	19 (17%)
Group 2 (metastatic lung cancer, N=75)	Anxiety of patients’ relatives				
	Absent	Occasional	Rarely	Most of the time	Yes, always
Initial evaluation	2 (3%)	5 (7%)	13 (17%)	43 (57%)	12 (16%)
1-month evaluation	0 (0%)	11 (14%)	38 (51%)	17 (23%)	9 (12%)
6-month evaluation	0 (0%)	25 (33%)	28 (37%)	8 (11%)	14 (19%)
Group 3 (other types of cancer, N=95)	Anxiety of patients’ relatives				
	Absent	Occasional	Rarely	Most of the time	Yes, always
Initial evaluation	4 (4%)	3 (3%)	17 (18%)	61 (64%)	10 (11%)
1-month evaluation	1 (1%)	9 (10%)	48 (51%)	30 (31%)	7 (7%)
6-month evaluation	1 (1%)	31 (32%)	41 (43%)	11 (12%)	11 (12%)

***The role of psychiatric medication in decreasing the physical symptoms and depression***

Psychiatric medication plays an important role in reducing the patient’s physical symptoms occurring in the oncological context. Pain, the most discomforting symptom of the oncological patient, for example, was significantly reduced in the context of psychiatric treatment in addition to symptomatic treatment. The reduction trend is followed by the improvement of the patient’s affective state (Fig. 2, 3, and 4). During this study, there was recorded no severe adverse event that could lead to the discontinuation of the recommended treatment. Therefore, the efficacy analysis includes all the patients participating in the baseline visit.

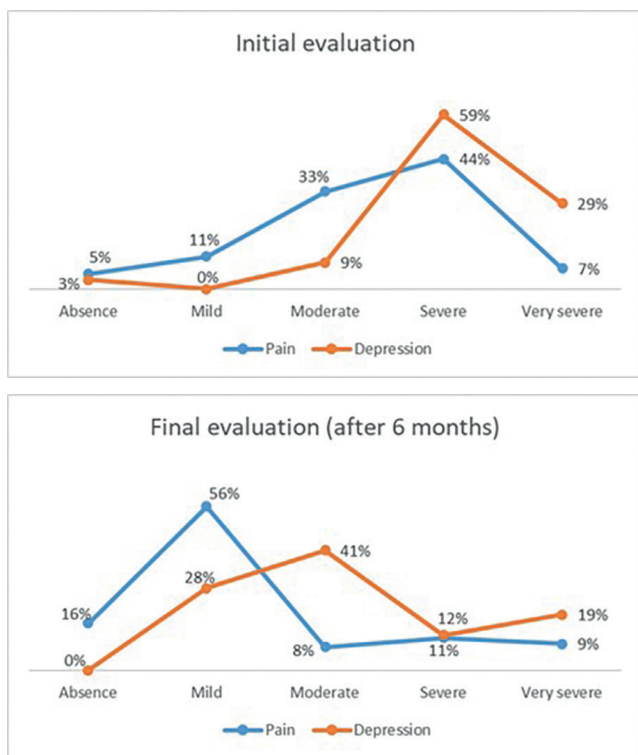


**Figure 1.** Initial vs. final evaluation of the pain and depression severity during psychotropic treatment in patients with lung cancer

In the group of patients with lung cancer, there was observed a strong association between pain intensity and depression evolution in the sense that a decrease in pain corresponds to an improvement in depression,  $p < 0.05$  for all category comparisons (baseline vs. end-point evaluation). It can also be seen from the graphical analysis of the data that there is a strong percentage of “migration” from the “severe” and “moderate” categories to the “mild” and “absent” categories for both pain and depression (Fig.1).

In the metastatic lung cancer patient group, there

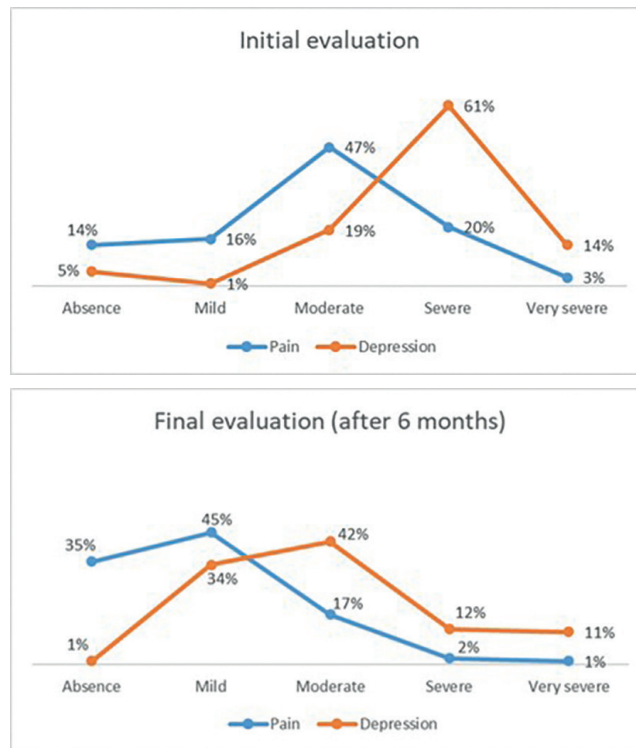
was detected a strong association between pain intensity and the progress of depression in the sense that a decrease in pain corresponds to an improvement in depression,  $p < 0.05$  for all category comparisons (initial vs. final evaluation). The “moderate” category (of depression), which numerically shows a percentage increase from 9% at initial evaluation to 41% at final evaluation, corresponds, inversely proportionally, to a significant decrease in pain intensity of the corresponding category. This should be interpreted in the context of the percentage “migration” from the “very severe” and “severe” to the “moderate” and “mild” categories for depression, which represents an improvement in depression (Fig.2).



**Figure 2.** Initial vs. final evaluation of the pain and depression severity during psychotropic treatment in patients with metastatic lung cancer

Similar to the analyses of the other two groups of patients presented above, the group of patients with other types of cancer also showed a strong association between pain intensity and the evolution of depression in the sense that a decrease in pain corresponds to an improvement in depression,  $p < 0.05$  for all category comparisons (initial vs. final evaluation). The “moderate” category (of depression), which numerically shows

a statistically significant percentage increase from 19% at initial evaluation to 42% at final evaluation ( $p = 0.021$ ), corresponds, inversely proportionally, to a significant decrease in pain intensity of the corresponding category. This should be interpreted in the context of the percentage “migration” from the “very severe” and “severe” to the “moderate” and “mild” categories for depression, which represents an improvement in depression (Fig.3).



**Figure 3.** Initial vs. final evaluation of the pain and depression severity during psychotropic treatment in patients with other types of cancer

Obviously, the same trend is followed by the other physical oncological symptoms.

The introduction of psychiatric medication, by alleviating the patient’s depression, also led to an improvement in the well-being of the relatives. Thus, the intensity of the family’s anxiety decreases with the improvement of the depressive state in all groups of patients (Fig. 5, 6 and 7).

**Comparison of the intensity of family’s anxiety with the evolution of patient depression**

In patients with lung cancer, there was a strong association between family anxiety and the evolution of the



patient's depression in the sense that a decrease in family anxiety corresponds to an improvement in depression,  $p < 0.05$  for all category comparisons (initial vs. final evaluation). It can also be seen from the graphical analysis of the data that there is an almost identical pattern of family anxiety vs. patient depression at both the initial and 6-month evaluations. There is a strong percentage of "migration" from the 'severe' and 'moderate' to the 'mild' and 'absent' categories for both family anxiety and depression (Fig.4).

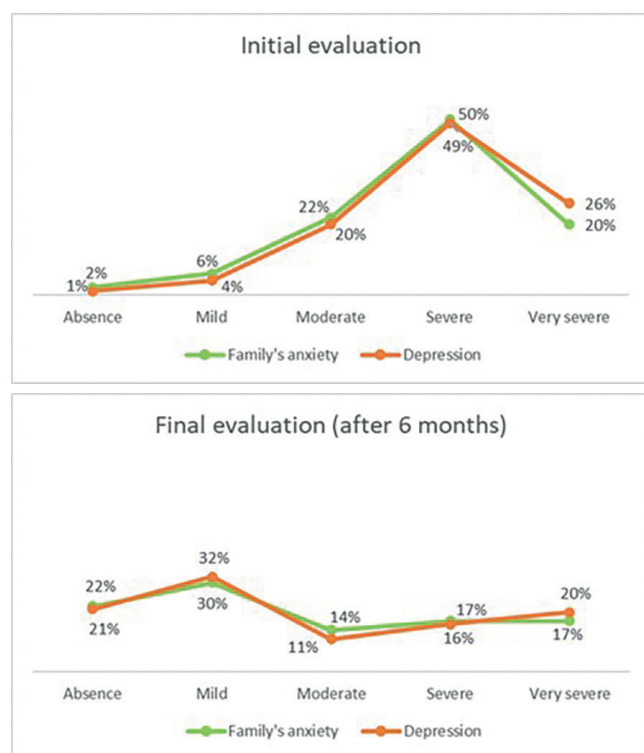


Figure 4. Initial vs. final evaluation of the family's anxiety during psychotropic treatment in patients with lung cancer

In patients with metastatic lung cancer, there was a strong association between family anxiety and the evolution of the patient's depression in the sense that a decrease in family anxiety corresponds to an improvement in depression,  $p < 0.05$  for all category comparisons (initial vs. final evaluation). It can also be seen from the graphical analysis of the data that there was an almost identical pattern of family anxiety vs. patient depression at both the initial and 6-month evaluations. There is a strong percentage of "migration" from "severe" to "moderate" and "mild" categories for both family anxiety and depression (Fig.5).

In patients with other types of cancer, there was a strong association between family anxiety and the evolution of the patient's depression in the sense that a decrease in family anxiety corresponds to an improvement in depression,  $p < 0.05$  for all category comparisons (initial vs. final evaluation). It can also be seen from the graphical analysis of the data that there was a similar pattern of family anxiety vs. patient depression at both the initial and 6-month evaluation; percentage differences between the trend of family anxiety and that of patient depression are noted for the "mild" and "absent" categories, in the sense that patient depression "migrates" to these categories but does not reach such high percentages as family anxiety in these categories (Fig.6).

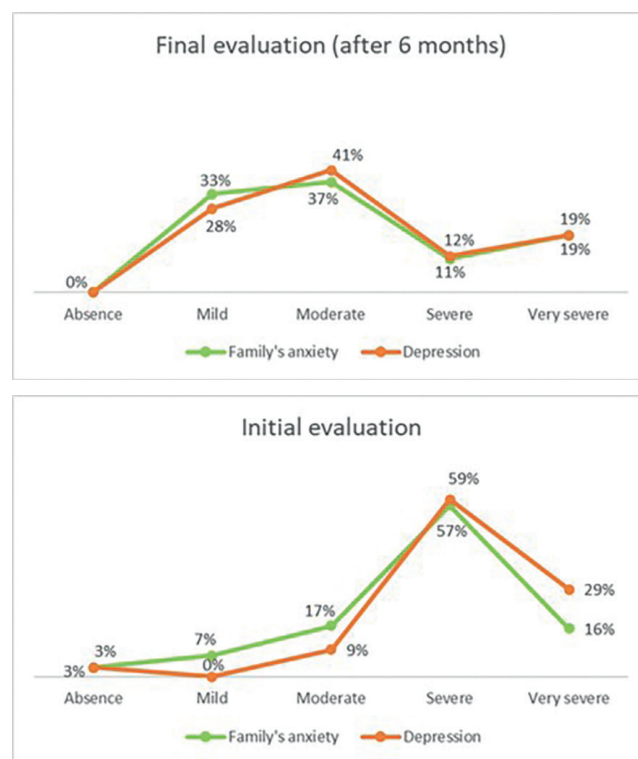
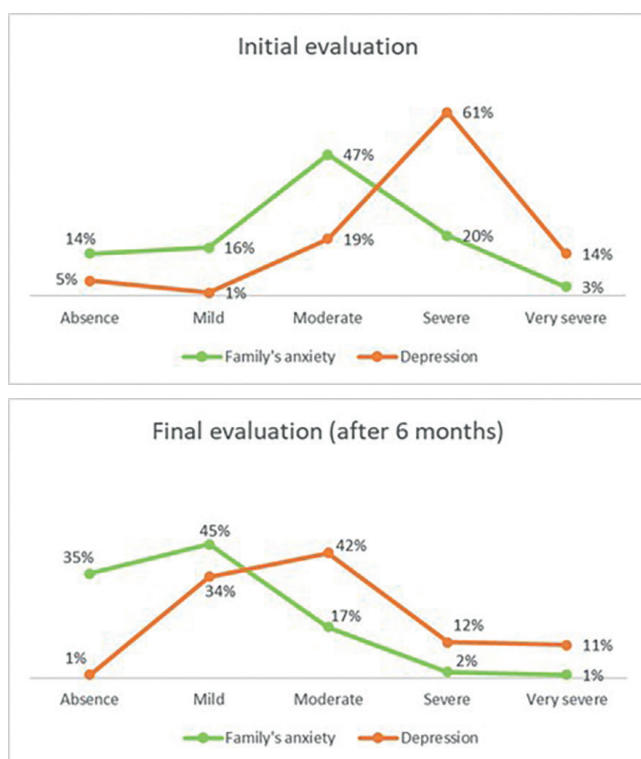


Figure 5. Initial vs. final evaluation of the family's anxiety during psychotropic treatment in patients with metastatic lung cancer



**Figure 6.** Initial vs. final evaluation of the family's anxiety during psychotropic treatment in patients with other types of cancer

## CONCLUSIONS

The study proves the importance of introducing psychiatric medication as soon as possible after the formulation of a cancer diagnosis, even with reduced discomforting physical symptoms, which results in improvement of both the physical and emotional status of the patient.

Based on this research, it seems reasonable to investigate the possibility of modifying the criteria for including a patient in palliative care and adjusting the therapeutic protocols used in this context, taking into account the increased life expectancy of the cancer patient.

These data also support changing the notion of palliative care to "long-term cancer survivorship care" and introducing psychiatric medication immediately after the cancer diagnosis was formulated, from the earliest stages, resulting in an increase in the patient's and family's well-being, quality of life, and efficacy of communication.

## Compliance with ethical requirements

The authors state that there are no conflicts of interest in relation to this article.

The authors hereby represent that all procedures and experiments in this study comply with the ethical standards established by the Declaration of Helsinki of 1971, as revised in 2008, and with national laws.

Informed consent was signed by all patients in the study.

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## Abbreviations

IPOS-Integrated Palliative Outcome Scale

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Rares Florescu

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