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ANXIETY, DEPRESSION AND QUALITY OF LIFE IN ELDERLY PEOPLE WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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Abstract: **INTRODUCTION:** The morbidity and mortality associated with chronic obstructive pulmonary disease implies a significant reduction in the quality and life expectancy of its sufferers, a fact heightened by the presence of comorbidities in these patients. Anxiety and depression are comorbidities with increased frequency in this population. **OBJECTIVES:** To establish relationships between anxiety, depression and quality of life in elderly patients with chronic obstructive pulmonary disease in an outpatient population in Curitiba. **METHODS:** Cross-sectional study, with 54 volunteers aged 60 or over, of both genders and any ethnicity, in the city of Curitiba, Brazil, with chronic obstructive pulmonary disease. Screening for anxiety and depression was carried out using the Hospital Anxiety and Depression Scale questionnaire, while quality of life was assessed using the WHOQOL-OLD questionnaire. Data on clinical variables were obtained through consented access to the volunteers' medical records. Statistical analysis adopted values of p < 0.05 for significance. **RESULTS:** Progressively higher anxiety (p < 0.001) and depression (p = 0.001) scores are related to lower quality of life indicators. The concomitant use of 8 or more medications was related to positive values for depression screening (p = 0.019). Physical inactivity was a predisposing factor for higher anxiety scores (p = 0.008) and depression (p = 0.035). **CONCLUSIONS:** It can be concluded that, among elderly people with chronic obstructive pulmonary disease, physical inactivity, use of more than eight medications and high anxiety and depression scores were correlated with lower quality of life indicators.

Keywords: Chronic obstructive pulmonary disease; Depression; Anxiety; Quality of life; Elderly; Polypharmacy.

INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) is defined as a heterogeneous lung condition characterized by chronic respiratory symptoms, caused by abnormalities of the airways or alveoli (emphysema), which cause persistent and/or progressive obstruction of ventilatory flow[1]. The global prevalence of the disease is estimated at 10.3%, so that, with the aging of the population, this prevalence is increasing[1]. COPD is one of the three main causes of death in the world, excluding external causes, with 90% of deaths related to the condition occurring in low- or middle-income countries[2]. In Brazil, a prevalence of 17% in the general population is estimated, with people over 55 years old predominating among those affected[3].

It is believed that there is a pro-inflammatory state present in COPD that promotes rapid advancement in the natural history of other diseases, which reinforces the concept of lung disease as a systemic condition[4]. Patients with chronic obstructive pulmonary disease, associated with three or more comorbidities, are more likely to be hospitalized and have a reduced life expectancy, when compared to patients with COPD in the absence of other comorbidities[5]. Anxiety and depression are comorbidities with increased frequency in COPD patients, playing an important role in impairing quality of life and adherence to treatment for lung disease[6], and can lead to situations of panic, lack of hope, low self-esteem, social isolation and dependence on caregivers, factors that contribute to the perpetuation of such mood disorders[6]. Anxiety can impose itself as a debilitating factor on the patient which, when chronic and if not treated correctly, predisposes alone to low self-esteem and a greater presence of suicidal ideation[7]. However, only a third of COPD patients who have anxiety or depression as comorbidities

receive appropriate treatment for mood disorders[6].

Furthermore, aging can be seen as a multifactorial and multifaceted process, which involves biopsychosocial aspects and involves understanding the process of aging intrinsic to generations of a society[8]. The definition of active aging was presented as the "optimization of opportunities for health, participation and security, with the aim of improving quality of life as people get older"[9]. The World Health Organization (WHO) group linked to research involving quality of life, the World Health Organization Quality of Life (WHOQOL), in turn, defined quality of life as the individual's perception of their position in life, in the context of the culture and value system in which they live. he lives, in relation to his goals, expectations, standards and concerns[10].

This study aims to characterize the relationship between anxiety, depression and quality of life in patients considered elderly[11] and with COPD in the studied population.

METHODS

This is an observational, cross-sectional and analytical study, conducted at the Chronic Obstructive Pulmonary Disease Clinical Outpatient Clinic of the Cardiopulmonary Unit of the Hospital das Clínicas of ``Universidade Federal do Paraná``, in Curitiba (PR), Brazil, with data collection between May 17, 2022 on January 31, 2023, by applying questionnaires directly to interviewees, with the possibility of self-application or interview, in addition to access to electronic medical records. No form of biological material was collected nor participants were exposed to experimental methods. The study was divided into two stages: 1) Recruitment of participants, application of questionnaires and collection of data from medical records; 2) Evaluation of the results of the questionnaires and medical record data, with subsequent organization and statistical analysis.

Recruitment was carried out by approaching patients while waiting for outpatient care, requesting voluntary participation in the study, upon presentation and explanation of the Free and Informed Consent Form (TCLE). The inclusion criteria were: men or women aged 60 or over and diagnosed with COPD. The exclusion criteria were: patients with insufficient understanding of the Portuguese language; patients who were not physically able to answer the questionnaire; patients who had a diagnosis defined as dementia syndrome; patients who, for some reason, had their COPD diagnosis doubtful or excluded after the interview; patients not diagnosed with COPD; men and women under the age of 60. Data collection was carried out by applying questionnaires to patients, in addition to clinical information collected from their medical records upon agreement with informed consent.

The WHOQOL-OLD Questionnaire is a method of objective analysis of self-perceived quality of life, aimed at the elderly population. The WHOQOL-OLD has 24 items, divided into 6 facets: sensory funcioning (SF), autonomy (AUT), past, present and future activities (PPF); death and dying (DAD), social participation (SOP) and intimacy (INT). Each facet has 4 questions whose answers vary in their score according to the Likert scale (1 to 5), therefore varying the facet's total score from 4 to 20 points. The higher the final score, the better the elderly person's quality of life[12].

The Hospital Anxiety and Depression Scale (HADS) is also an assessment method based on self-perception, being able to identify possible or probable cases of both anxiety and depression, with parameters compatible with those found in DSM-III and DSM - IV[13]. The translated HADS is validated for use in Brazil in order to identify possible cases of anxiety

and depression in populations not clinically diagnosed for such.

The questionnaire uses 14 items divided into 2 subscales: the HADS-a adds 7 items related to Mild Anxiety Disorder (MAD), while the HADS-d, the 7 items related to Mild Depressive Disorder (MDD). The scale varies from 0 to 3 points per item, therefore having a maximum of 21 points per subscale, with the cut-off points estimated in the literature being ≥ 9, or ≥11, both used for statistical analysis[14].

These questionnaires were answered through face-to-face interviews with some patients and by self-administration in others, when possible. Among the items researched, in addition to depressive and anxious symptoms and quality of life, sociodemographic data were obtained, presented in Table 1. After applying the questionnaires, in cases of a total of ≥ 9 points in the HADS[14] test regarding anxious symptoms, and/or depressed, the medical team responsible for monitoring the patient was notified by the applicators to address this issue in subsequent care if it was of interest to the patient.

The extraction of data contained in the medical records aimed to find the clinical staging of COPD[2], drug treatments and number of medications used[15], comorbidities (including previous diagnoses of depression and anxiety), smoking, previous surgeries, use of oxygen therapy and practice of respiratory physiotherapy. All confidentiality rights expressed in the Informed Consent Form were respected and the participant inclusion and exclusion criteria were duly applied.

The data were stored and organized in an Excel® spreadsheet and later analyzed using the IBM SPSS Statistics v.28.0 computer program. For the descriptive analysis of the data, the mean, standard deviation, median, minimum and maximum (quantitative variables) or absolute frequency and percentage (categorical variables) were presented. The association between two categorical variables was assessed using Fisher's exact test or the Chi-square test. To compare the classifications of dichotomous variables, in relation to the HADS and WHOQOL-OLD scores, the non-parametric Mann-Whitney test was used. Variables with more than two classifications were analyzed using the Kruskal-Wallis non-parametric test and Dunn's post-hoc test. To analyze the correlation between the quantitative variables of the HADS and WHOQOL-OLD scores, the Spearman correlation coefficient was used. P values < 0.05 indicated statistical significance. For multiple comparisons made using Dunn's test, p values were subjected to Bonferroni correction.

This project was approved by the Research Ethics Committee of CHC/UFPR/Ebserh (CAAE 57005022.8.0000.0096), opinion 5,370,574, with a reporting date of April 26, 2022.

RESULTS

Of a universe of 82 patients approached, 17 refused to participate or withdrew during the first stage, 3 had a diagnosis other than COPD, 4 did not have a diagnosis of COPD confirmed before the end of the data collection stage, 3 patients were disabled due to physical conditions (two patients had severe dysphonia and one patient had limiting deafness), 1 patient approached was disabled due to cognitive issues. This left a sample of 54 participants who went on to the second phase of the study after meeting the inclusion criteria and not meeting any exclusion criteria.

Table 1 provides the sociodemographic data of the study participants. The patients' age averaged 68.7 ± 6.1 years, a median of 67.5 years, a minimum age of 60 and a maximum of 86 years.

The population studied presented a prevalence of responses in the HADS questionnaire of 44% for responses with a

sum of ≥ 16, considering both categories; 44.4% and 24.1% had responses ≥ 9 and ≥ 11, respectively, for the HADS-a category; 35.2% and 27.8% obtained responses ≥ 9 and ≥ 11, respectively, for the HADS-d category. Regarding the WHOQOL-OLD, the average sum of responses was 62.2 points, with a standard deviation of 12.6; the median response was 62.5. The WHOQOL-OLD facet with the lowest response value for means and median was the "death and dying" (DAD) facet, presenting values of 56.7 and 56.3, respectively.

FIGURE 1 - WHOQOL-OLD DISPERSION DIAGRAM (TOTAL SCORE) VS. HADS-a

SOURCE: The authors (2023)

NOTES: Spearman correlation coefficient = -0.57; $p < 0.001$

FIGURE 2 - WHOQOL-OLD DISPERSION DIAGRAM (TOTAL SCORE) VS. HADS-d

SOURCE: The authors (2023)

NOTES: Spearman correlation coefficient = -0.44; $p = 0.001$

Variables	n	Spearman correlation coefficient	P
HADS-Total Score x SF (%)	54	-0.17	0.207
HADS- Total score x AUT (%)	54	-0.51	0.000
HADS- Total score x PPF (%)	54	-0.42	0.001
HADS- Total score x SOP (%)	54	-0.45	0.001
HADS- Total score x DAD (%)	54	-0.34	0.012
HADS- Total score x INT (%)	54	-0.24	0.081
HADS- Total score x TOTAL (%)	54	-0.58	0.000
HADS- Anxiety score x SF (%)	54	-0.31	0.021
HADS- Anxiety score x AUT (%)	54	-0.39	0.004
HADS- Anxiety score x PPF (%)	54	-0.35	0.009
HADS- Anxiety score x SOP (%)	54	-0.35	0.010
HADS- Anxiety score x DAD (%)	54	-0.43	0.001
HADS- Anxiety score x INT (%)	54	-0.22	0.107
HADS- Depression score x SF (%)	54	-0.01	0.951
HADS- Depression score x AUT (%)	54	-0.46	0.000
HADS- Depression score x PPF (%)	54	-0.43	0.001
HADS- Depression score x SOP (%)	54	-0.44	0.001
HADS- Depression score x DAD (%)	54	-0.13	0.347
HADS- Depression score x INT (%)	54	-0.22	0.103

TABLE 2 - CHARACTERIZATION OF THE CORRELATION BETWEEN HADS AND WHOQOL-OLD BY FACETS

LEGEND: SF = Sensory Functioning; AUT = Autonomy; PPF = Past, Present, and Future Activities; SOP = Social Participation; DAD = Death and Dying; INT = Intimacy; Total = WHOQOL-OLD Total Score.
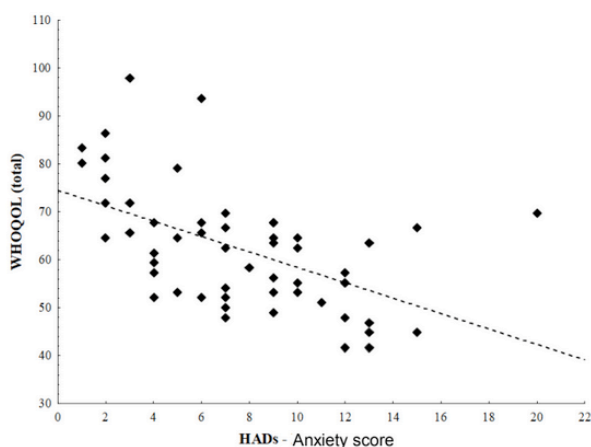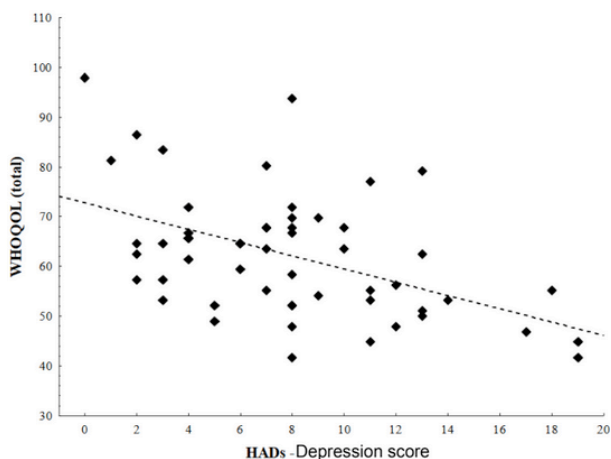
SOURCE: The authors (2023)

Furthermore, with the aim of investigating the existence of a cut-off point for the number of comorbidities that would indicate a greater association with HADS questionnaire response values, ROC curve adjustment calculations (receiver operator characteristic curve) were performed, with accuracy determined. the relationship between the number of comorbidities and its discrimination between

Variable	Classification	n	%
Age years)	60-64	15	27.8
	65-69	17	31.5
	70 years or more	22	40.7
Gender	Masculine	27	50.0
	Feminine	27	50.0
Education	Illiterate	4	7.4
	14 years	17	31.5
	5 - 8 years	24	44.4
	9 years or more	9	16.7
Occupation	Retiree	39	72.2
	Unemployed	10	18.5
	Self-Employed/Employee	5	9.3
marital status	Single/divorced/widowed	30	55.6
	Married/stable union	24	44.4
Lace band	Up to 2 minimum wages	46	85.2
	2 - 5 minimum wages	8	14.8
Physical activityb	Physical activity	38	70.4
	Physical inactivity	16	29.6
Number of comorbidities	0 to 4	37	68.5
	5 or more	17	31.5
Number of medicationsc	1 to 4 (No polypharmacy)	14	25.9
	5 to 18 (Polypharmacy)	40	74.1
Number of medicines	1 to 4 (No polypharmacy)	14	25.9
	5 to 7 (Polypharmacy)	16	29.6
	8 to 18 (Polypharmacy)	24	44.4
Staging (GOLD)	1A/2A	4	7.4
	3A/4A	2	3.7
	1B/2B	14	25.9
	3B/4B	10	18.5
	2E/3E	19	35.2
	4E	5	9.3
Physiotherapy	No	49	90.7
	Yes	5	9.3
Oxygen therapy	No	40	74.1
	Yes	14	25.9
Active smoking	No	43	79.6
	Yes	11	20.4
Previous surgeries	No	23	44.2
	Yes	29	55.8

TABLE 1 - DEMOGRAPHIC PROFILE OF VOLUNTEERS

SOURCE: The authors (2023)

NOTES: aThe maximum income range found among volunteers was 2-5 minimum wages. b "Physical activity" included any amount of time dedicated to non-work physical activity. cValue of polypharmacy as concomitant use of 5 or more medications16. dValue of 8 drugs or more corresponds to the discriminant value found in the ROC curve fitting calculation. eAll patients who answered "no" in the active smoking item were identified as former smokers during the research.

the different cutoff points established in the questionnaire. For all HADS variables, there was no statistical significance in the ROC curve adjustments, therefore the number of comorbidities did not present a specific value for which there were more responses above the cutoff values ≥ 9 and ≥ 11.

The same ROC curve fitting procedure was performed to test the association between the number of medications and the different cutoff points of the HADS tool. In this scenario, there was a statistically significant association for the HADS-d cutoff points 9 and 11, so that the concomitant use of 8 or more medications proved to be the ideal cutoff point, from which the HADS-d response values are associated with results ≥ 9 (sensitivity = 63.2%; specificity = 65.7%; p = 0.041) and ≥ 11 (sensitivity = 73.3%; specificity = 66.7%; p = 0.019). There was no statistically significant discrimination for HADS sum values, or HADS-a cutoffs.

The socioeconomic variables, which include age groups, gender, education, occupation, marital status and income range, did not show a significant association when looking at the means and medians of the sum of responses from both questionnaires, nor did they show any statistical influence on the results. association with the HADS questionnaire, in any category or cutoff point, for the population studied.

Physical inactivity, however, demonstrates a statistically significant relationship with higher means and medians of HADS responses (total sum, HADS-a and HADS-d). Furthermore, physical inactivity is correlated with a greater proportion of positive results (higher than the cutoff point) of HADS-a and HADS-d, when the cutoff value 9 is used, as shown in Table 3. There was, however, no correlation between the physical inactivity and lower WHOQOL-OLD scores, whether total score or in any of its facets.

Furthermore, the variation in mean and median results of WHOQOL-OLD scores was compared according to different HADS variables, therefore different possible cutoff points for this questionnaire. Values ≥16 points were selected for total HADS scores and ≥ 11 for the HADS-a and HADS-d categories. When HADS total score values ≥ 16 and HADS-a ≥ 11 are reached, lower mean and median WHOQOL-OLD scores were recorded in the facets Autonomy (p = 0.003 and p = 0.017, respectively), Social Participation (p = 0.012 and p = 0.017, respectively) and Death and Dying (p = 0.040 and p = 0.028, respectively) and WHOQOL-OLD total score (p = 0.002 and p = 0.002). When the HADS-d category with a cutoff point ≥ 11 is analyzed, there is a significant difference in the differences in means and medians and WHOQOL-OLD scores in the Autonomy (p = 0.013), Past, Present and Future Activities (p = 0.005) facets. and Social Participation (p = 0.021).

Similarly, measures of association between the number of comorbidities, number of medications, use of oxygen therapy, physiotherapy practice, active or previous smoking, previous surgery and use of specific medications for the treatment of COPD (Annex 1) were made to assess their effects on the means and medians of summed responses to the HADS and WHOQOL-OLD questionnaires, with no significant correlation for differences in values found.

The same variables were used to compare results grouped at different cutoff points for the total sum of HADS, HADS-a and HADS-d, in order to seek correlation with the proportion of positive responses (above the cutoff point) or negative responses (below of the cutoff point).

When the number of medications used simultaneously is greater than or equal to 8, there is a statistically significant association

| Variable | Classification | Physical activity | | | | P |
| | | Sedentary | | Not sedentary | | |
		n	%	n	%	
HADs - Total	< 16	18	47.4	12	75.0	
	≥ 16	20	52.6	4	25.0	0.078
HADs - Anxiety	< 9	17	44.7	13	81.3	
	≥ 9	21	55.3	3	18.8	0.018
HADs - Anxiety	< 11	26	68.4	15	93.8	
	≥ 11	12	31.6	1	6.3	0.079
HADs - Depression	< 9	21	55.3	14	87.5	
	≥ 9	17	44.7	2	12.5	0.030
HADs - Depression	< 11	25	65.8	14	87.5	
	≥ 11	13	34.2	2	12.5	0.182

| Variable | Classification | oxygen therapyb | | | | P |
| | | No | | Yes | | |
		n	%	n	%	
HADs - Total	< 16	26	65.0	4	28.6	
	≥ 16	14	35.0	10	71.4	0.028
HADs - Anxiety	< 9	26	65.0	4	28.6	
	≥ 9	14	35.0	10	71.4	0.028
HADs - Anxiety	< 11	34	85.0	7	50.0	
	≥ 11	6	15.0	7	50.0	0.025
HADs - Depression	< 9	27	67.5	8	57.1	
	≥ 9	13	32.5	6	42.9	0.528
HADs - Depression	< 11	29	72.5	10	71.4	
	≥ 11	11	27.5	4	28.6	1

TABLE 3 - COMPARISON OF HADS VS. PHYSICAL ACTIVITY AND OXYGEN THERAPY

SOURCE: The authors (2023)

NOTES: aMann-Whitney non-parametric test, $p < 0.05$; bFisher's exact test, $p < 0.05$.

with a higher proportion of positive responses in HADS-d with cutoff points 9 ($p = 0.041$) and 11 ($p = 0.014$), but not in other categories. Furthermore, the use of oxygen showed a higher proportion of positive results in the HADS test for cutoff points 16 (total sum; $p = 0.028$), HADS-a with cutoff point 9 ($p = 0.028$) and HADS-a with cutoff point cutoff 11 ($p = 0.025$), as shown in Table 3. The other variables did not present statistically significant associations for this analysis.

DISCUSSION

The recognition and management of anxiety and depression as comorbidities in patients with COPD is hampered by the frequent clinical overlap with the manifestations of the lung disease itself[17]. Similarly, COPD can be underdiagnosed and incorrectly treated in patients with psychopathology[18]. The HADS diagnostic screening questionnaire for anxiety and depression has two cutoff points, originally proposed by Zigmond[14], with the cutoff point ≥ 9 presenting greater sensitivity, while the value ≥ 11 presents greater specificity for

screening, which is proposed for populations with higher positive pre-test probability for anxiety and depression; the final diagnosis involves a specialized consultation for this purpose. The value ≥ 16 points in the total sum of HADS aims to assess psychological distress in the patients studied. This value was used based on the results of Lopez et al.[19] in a population with a high probability of positive responses to the HADS subdivisions, with ≥ 16 being the value with the greatest specificity among those possible for the study, which would reflect the poor capacity of the individual to adapt to adversity.

In the present study, the prevalence found for positive screening for depression based on reported symptoms is 27.8%, which is close to a large meta-analysis[20] with 39,587 patients with COPD (without discrimination by age group), which report prevalences of 24. 6%.

Anxiety, however, appears to be in lower proportions than reported, with 24.1% of positive responses (adopting a cutoff point of 11), versus the global estimate of 40% in the same meta-analysis[20]. However, if the cutoff point in the HADS tool used for anxiety is 9 points, the prevalence rises to 44.4%, neglecting specificity due to the test's greater sensitivity.

This study also brings the perspective of factors associated with diagnostic screening for anxiety and depression in elderly patients with COPD: the factor of concomitant use of 8 or more medications and positive responses in the HADS-d category emerges, with reasonable sensitivity and specificities, when the cutoff value ≥ 11 is used. In this sense, there would be, in the studied population, a correlation between polypharmacy and depressive symptoms. It is known that adverse drug reactions in elderly patients represent a serious public health problem[21], which must be overcome with appropriate medication prescription[15], and the correlation found in the present study is in line with the correlation already proposed between depression and polypharmacy in older adults[22] and between polypharmacy and a higher risk of depression in the general population[23].

Some of the risk factors already reported for the development of anxiety and depression in the COPD population include physical weaknesses, oxygen dependence, present respiratory symptoms (mainly dyspnea), high number of comorbidities, female gender, active smoking, low socioeconomic status, marital status (widowed, divorced, single - never married), living alone and worse quality of life[4]. In the present study, only statistically significant associations were observed between anxiety and depression scores with oxygen therapy (which had a demonstrated impact on the HADS-a category and psychological distress) and worse quality of life indices, a topic that will be discussed later. Oxygen therapy, especially long-term therapy, is associated with lower levels of physical activity, a higher risk of depression, more typically, and anxiety in patients with COPD[24]. Although there was no significant correlation between oxygen therapy and depression in this research, the results in relation to anxiety are statistically relevant, since, even adopting the cutoff point with greater specificity for screening the HADS-a category (≥ 11), there is still meaningfulness. Anxiety is the third most prevalent comorbidity globally in patients with COPD, and it also contributes to higher mortality in these patients[4].

Even though there is clinical importance in characterizing the impact in other aspects, given that, for example, the number of comorbidities acts as an independent predictor of all-cause mortality[4], the other risk factors previously mentioned did not demonstrate a significant association in this population. It is possible that such null results were achieved due to the limited research sample.

Table 2 demonstrates the correlation between grouped HADS and WHOQOL-OLD score values, so that all coefficients found in the study are negative. Negative correlation coefficients imply an association of loss of WHOQOL-OLD values due to increasing values of the different HADS categories, and vice versa. It is possible to infer that, for the population studied, there is a negative impact of self-reported symptoms of anxiety and depression on patients' quality of life. It is worth highlighting that this impact is demonstrated not only in a general perspective, which is characterized by the total score of the WHOQOL-OLD questionnaire, but also in its different facets, allowing a comprehensive perception of the damage in the different aspects that make up the volunteers' lives. Regardless of the HADS category analyzed, the Autonomy (AUT), Past, Present and Future Activity (PPF) and Social Participation (SOP) facets appear with statistical significance for the negative correlation. Figures 1 and 2 present the perspective in graphic form of such correlations, comparing the total score of both questionnaires, in order to highlight the above. Furthermore, results higher than the cutoff values 16 (total sum) and 11 in the anxiety and depression categories of the HADS are associated with worse means and medians of responses in 50% of the facets of the WHOQOL-OLD questionnaire, so that positive screening, for itself, it also tends to correlate with worse quality of life indicators.

For old age, quality of life depends on the preservation of self-perception, maintenance of personal goals and values, ability to adapt, independence and autonomy[25]. There is evidence, however, that there is a reduction in functional capacity and autonomy, while loneliness increases in the geriatric population[26].

The WHOQOL-OLD questionnaire was chosen for this purpose, as it addresses the interviewee's perception of their multifaceted reality. Furthermore, it is worth noting that anxiety and depression can lead to situations of panic, lack of hope, low self-esteem, social isolation and dependence on caregivers, factors that contribute to the perpetuation of mood disorders[6].

Physical activity can be defined as any body movement produced by skeletal muscles that requires energy expenditure greater than basal levels, such as walking or climbing stairs[27]. Oliveira et al.[28] points out that aging associated with a sedentary lifestyle tends to favor mental, social and physical dependence on the part of the elderly. This research, in turn, presents a relevant association established between the results of the different HADS parameters and physical activity, so that patients who practiced some physical activity (n = 16), regardless of the weekly time dedicated to this purpose, presented more modest results in the screening score for anxiety and depression, when compared to those who did not perform any physical activity (n = 38). It is noteworthy that patients with COPD and anxiety are twice as likely to present functional limitations and reduced tolerance to physical exercise, added to the reduction in autonomy caused by age, which can lead to physical inactivity in a greater proportion in this population[17, 26]. Finally, regular physical activity can promote improved autonomy in several aspects in old age, such as social, vital aspects and functional capacity[28]. Pulmonary rehabilitation therapy, which involves targeted physical exercises, together with patient education and carried out by a multidisciplinary team, reduces symptoms of anxiety and depression in patients with COPD and must be encouraged at every opportunity[28,29]. However, this study was not able to evaluate the impact of physiotherapy and pulmonary rehabilitation therapy, due to low adherence to these modalities.

In this context, it is possible to list different

barriers to attention to mental health issues when caring for patients with COPD, including: barriers linked to the patient, such as lack of understanding of symptoms and reluctance to the possible diagnosis of anxiety and depression; barriers linked to the professional, such as the lack of standardization of the diagnosis of mood disorders, restricted consultation time and lack of confidence in the appropriate approach to mental health issues, in addition to barriers linked to the system, related to communication between different levels of care and insufficient resources for patient care[24].

As limitations of this study, the low sample number obtained stands out. Furthermore, the ideal cutoff point that must be adopted for correct screening of anxiety and depression is uncertain, as it is directly influenced by the characteristics of the population studied, and can be adjusted according to the purpose (screening or screening of outpatient or hospitalized populations)[30]. Selection biases during sample collection, in the case of convenience selection, as well as biases related to obtaining the answer through interviews by different researchers may have influenced the obtaining of the study results. Furthermore, there was no control group for comparative analysis with other subpopulations of elderly people.

CONCLUSIONS

During the study, evidence of progressive anxiety and depression scores was observed, influencing responses regarding quality of life and the different aspects that comprise it. Likewise, physical inactivity, dependence on oxygen therapy and use of multiple medications seem to negatively impact the symptoms of anxiety and/or depression in the studied population.

The constant investigation of mental health and quality of life issues in elderly and multi-comorbid patients can be difficult, so that, in hyper-segmented health systems, comprehensive patient assessment may be neglected due to the management of different conditions. As a way to minimize the aforementioned barriers, it is important to actively investigate mental health issues in elderly patients, especially with aggravating comorbidities, such as COPD. As a future research perspective, it would be important to characterize a larger population, in order to identify other factors individually linked to the symptoms of depression and anxiety, as well as worse quality of life indices.

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ANNEX 1 - PREVALENCE OF THE USE OF SPECIFIC MEDICINES FOR THE TREATMENT OF COPD

Class	Use	n	%
LABA	No	4	7.4
	Yes	50	92.6
MUD	No	24	44.4
	Yes	30	55.6
LABA+ICS	No	17	31.5
	Yes	37	68.5
LABA + LAMA	No	27	50.0
	Yes	27	50.0
LABA + LAMA + ICS	No	36	66.7
	Yes	18	33.3

SOURCE: The authors (2023)

GRADES:

KEY: LABA = Long Acting Beta2- Agonists; LAMA = Long Acting Muscarinic Antagonists; ICS = Inhaled Corticosteroid.