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RESEARCH ARTICLE

Assessing the impact of disease on the quality of life in patients with COPD

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Objective: To evaluate the prevalence and clinical impact of psychiatric comorbidities—specifically depression, anxiety, bipolar disorder, and schizophrenia—among patients hospitalized with chronic obstructive pulmonary disease (COPD), and to examine their influence on disease progression and outcomes.

Methods: A cross-sectional study was conducted from September 2024 to May 2025 at the Pneumology Department of Mureș County Clinical Hospital. Hospitalized COPD patients were assessed using standardized psychiatric screening tools and clinical evaluations. Mixed methods were used: quantitative (PHQ-9 - Patient Health Questionnaire and SGRQ-C questionnaires - SGRQ-C - COPD-adapted Saint George Questionnaire) and qualitative (semi-structured interviews).

Results: Psychiatric comorbidities were common among the study population, with depression and anxiety being the most frequently diagnosed disorders. The PHQ-9 scores showed that the percentage of people experiencing depression is much higher than the declared prevalence. The median SGRQ-C score was 62, reflecting a major impairment in quality of life. Qualitative assessment through semi-structured interviews allowed a deepening of the doctor-patient relationship.

Conclusions: Psychiatric disorders are prevalent and clinically significant in patients with COPD yet often remain underdiagnosed and undertreated. These findings highlight the importance of routine mental health screening and the implementation of integrated care strategies that address both respiratory and psychiatric needs. Such approaches have the potential to improve overall health outcomes and quality of life in this vulnerable patient population.

Keywords: COPD, psychiatric comorbidities, depression and anxiety

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Introduction

Chronic obstructive pulmonary disease (COPD) and psychiatric pathology are considered both comorbid conditions and independent factors that influence the course of the disease, reflecting a relationship of mutual influence, in which the boundaries between cause and effect are often fine and difficult to define [1,2]. Among these disorders are depression, anxiety, substance abuse disorders, bipolar disorder and schizophrenia [3]. The interaction of social, psychological and biological factors contributes to the pathogenesis of psychiatric conditions associated with COPD. Systemic inflammation could be a key element that connects these conditions. Being a defining feature of COPD, chronic inflammation can promote the development of neuroinflammation, involved in the development of psychiatric disorders by impaired cytokine signaling, prolonged or excessive production of proinflammatory cytokines, and oxidative stress [3,4].

Anxiety and depression are common in COPD patients, but most of the time these conditions are not diagnosed. The prevalence of anxiety ranges from 6% to 74%, and the prevalence of depression ranges from 6% to 50% [5]. Usually, the two mental disorders coexist [6]. The interactions and mechanisms between COPD, anxiety and depression are not fully understood, but an obvious mechanism is the psychological consequences of chronic disease such as oxygen dependence, fatigue, and the increased burden of respiratory symptoms (such as dyspnea) and physical disability [4]. All this significantly influences the patient's ability to cope with the condition. Also, the increased number of comorbidities, marital status and poor quality of life are among the risk factors [3]. The symptoms of these disorders are exacerbated, healthcare utilization is increased, and adherence to maintenance inhalers, pulmonary rehabilitation, and smoking cessation programs are severely compromised.

Anxiety and depression are correlated with an increased risk of hospitalization, exacerbation and are strong predictors of mortality in COPD. Patients with anxiety and/or depression require the first hospitalization at an earlier stage. These patients may experience dyspnea at a higher intensity, even if their physiological deficiencies are less severe. This sharp perception of dyspnea can generate unjustified medical visits, which over time lead to more frequent hospitalization.

From a pharmacological standpoint, co-administration of antidepressants, anxiolytics or sedative/hypnotics with

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bronchodilators is common. Most combinations are safe, yet clinically relevant interactions do exist—for example, additive QT (Quartile Time) interval prolongation when SSRIs (Selective Serotonin Reuptake Inhibitors) are combined with high-dose β_2-agonists, or cumulative anticholinergic burden when TCAs (Tricyclic Antidepressants) are used with LAMAs (Long-Acting Muscarinic Antagonists) [3,7].

Asthma–COPD overlap (ACO) has emerged as a clinically relevant phenotype that combines features of both asthma and obstructive pulmonary disease. Patients with ACO tend to present with distinct exacerbation patterns and often require earlier use of inhaled corticosteroid therapy compared to those who have only COPD. [8,9].

Occupational exposure to noxious particles is the second most important preventable risk factor for COPD after smoking. Exposures such as welding fumes, organic dusts, silica, diesel exhaust and cadmium are implicated in COPD incidence and accelerated lung-function decline. [10,11].

This mixed-methods study aimed to quantify depressive symptoms and disease-specific quality of life in Romanian in-patients with COPD, while qualitatively exploring the lived experience of the disease [11].

In patients with COPD, these mental health comorbidities were also associated with increased mortality, with relative risks of 2.29 (depression) and 1.27 (anxiety) [12].

Identifying and diagnosing these comorbidities is most challenging due to a lack of consensus on appropriate assessment scales or screening tools for this category of patients. Despite the fact that depression and anxiety are evaluated with difficulty, the accumulated evidence suggests that these mental health disorders lead to decreased quality of life, reduced therapeutic results, more frequent exacerbations, increased functional disability and higher mortality [4,12].

Methodology

This research is based on a cross-sectional study conducted between September 1, 2024, and May 1, 2025, involving COPD patients admitted to the Pneumology Clinic of Mureș County Clinical Hospital, either through day services or full-time inpatient care. The study benefited from the agreement of the Ethics Commission with the number 2724/04.03.2025, and the informed consent used was the one accepted by the Ethics Commission of the Mures County Clinical Hospital. To maintain the homogeneity of our study population, we excluded patients who met the 2023 GINA/GOLD criteria from asthma-COPD overlap (ACO), as this phenotype is commonly analyze separately in clinical research. Since occupational exposure to harmful particles is a major modifiable determinant of COPD risk and of accelerated lung-function decline, we systematically recorded participants' lifetime exposure to different harmful agents and incorporated these data into the descriptive analysis.

The research was carried out following two directions, which were constituted in 2 studies:

Study 1 - quantitative type, which consisted of the application of 2 internationally accredited and validated questionnaires by the European Respiratory Society (ERS). (Supplementary materials - Appendices 1,3)

The questionnaires used were the PHQ-9 and SGRQ-C for quality of life assessment. The questionnaires were translated into Romanian and administered to the patients face-to-face.

The PHQ-9 questionnaire contains 9 questions and assesses the depressed state of patients. The questions refer to the interest or pleasure in performing certain activities, feelings of sadness, depression, fatigue, lack of energy, but also negative feelings, including suicidal ideas (Supplementary materials - Appendix 3).

The SGRQ-C questionnaire (Supplementary materials - Appendix 3) contains 5 different sections containing several questions, starting from symptomatology (coughing, expectoration, wheezing), but also qualitative assessment of respiratory distress, daily activity impairment, or self-care capacity. The score of the SGRQ-C questionnaire is calculated online, in a link provided for this purpose by the ERS. The scores obtained are interpreted to appreciate the quality of life of patients; the higher the score, the lower the quality of life is.

Inclusion criteria:

- Adult patients admitted to the Pneumology Clinic of Târgu Mureș between September 2024 and May 2025
- Patients with established COPD diagnosis
- Patient who agreed to study participation and signed informed consent.

Exclusion criteria:

- Patients with respiratory disease other than COPD
- Patient who did not agree to participate in the study

Study 2- qualitative type, included 5 open, semi-structured interviews.

The first part presents an introduction and includes general questions that provided demographic data (age, gender). The second part includes 20 questions, grouped by different domains (Supplementary materials - Appendix 2). The interviews took place between 1 February 2025- 1 May 2025 at the Pneumology Clinic.

Inclusion criteria:

- Adult patient, hospitalized in the Pneumology Clinic Targu Mures
- Patients with established COPD diagnosis
- Patient who agreed to study participation and signed informed consent
- A patient who has the ability to understand and speak, to express himself

Exclusion criteria:

- Patient with respiratory disease other than COPD
- Patient who did not agree to participate in the study
- Patients who could not understand questions.

To respect patient privacy, interviews were conducted in a separate room to create privacy. The interviews were held in Romanian. As a multicultural area, we had a translator available in Hungarian for patients who did not fully understand the meaning of the question in Romanian. The interview was attended by the patient and two members of the team (the student and the coordinator). While the student interviewed the patient, the coordinator checked all the questions to be filled out and took notes. Voice recordings were made. The duration of each interview was about 30 minutes. The transcription of the audio recordings (word-for-word) was made one week after each interview. All transcripts were returned to participants for comments and corrections.

The first respondent was randomly selected (What COPD patient did I admit today?), then the snowball technique was used (Do you think someone else in your hospital room will be interested in answering these questions?). The interviews were taken one/ day, so as not to influence the willingness of respondents to participate and to give the research team the time needed to process the data. The data were analysed using qualitative methods. Thematic analysis was applied in this study. The main themes and sub-themes were established, based on the interview questions and the answers received, and also setting the code words.

The main themes were: Smoking and the impact of smoking on the disease as perceived by the patient; Disease-induced feelings and emotions (sadness, disappointment, helplessness); Quality of life assessment. From these main themes, sub-themes have been extracted, which are presented in the results section.

Results

Among the 46 eligible patients, 20 completed the questionnaires and 5 participated in in-depth interviews. Thematic analysis revealed three overarching themes: (1) emotional burden, (2) social connectedness, and (3) self-efficacy. Additionally, stigma and uncertainty regarding potential drug interactions emerged as prevalent concerns.”The results obtained from the medical documents of the patients showed the following demographic and habitual characteristics. Thus, 75% were male, 25% female; 70% came from urban and 30% from rural areas; 80% did not declare risk factors (unhealthy housing, wood heating, overcrowded spaces), but professional exposure (Figure 1.) was declared by 65% of the participants. The distribution of patients according to pack-year (PA) exposure is illustrated in Figure 2. The largest proportions were observed in the 30-39 PA and 40-49 PA categories, each accounting for 30% of the study population. Patients with 20-29 PA represented 20% of cases, while lower (10-19 PA) and higher (60-69 PA) exposures were less frequent, each observed in 10% of the participants.

Psychotropics: 35% used antidepressants; 20% nightly benzodiazepines. No recent psychiatric evaluations. Drug interactions in the study group: 2 moderate (SSRI + high-dose β_2-agonists), 1 major (amitriptyline + tiotropium).

From the data recorded in the medical sheets, the declared prevalence of depression was only 5%, with the remaining 95% not being diagnosed.

Results from questionnaires. A total of 20 patients responded to the applied questionnaires.

Questionnaire results SGRQ-C

SGRQ-C: median score 62 (IQR 50–78), indicating impaired HRQoL. For 80% (n=16) of patients, respiratory pathology is the most important health problem, and quality of life impairment is widely appreciated, as stated in Figure 3.

To the question „Do you feel everything is too much effort?”, 55% (n=11) of patients answered affirmatively, while 45 % (n= 9) answered negatively. To the question „Do your condition represent a burden for family, friends or neighbors?”, 80 % (n=16) answered affirmatively, 20 % (n=4) answered negatively. To the question”Do you feel that you fail to control the lung condition?”, only 40 % (n=8) answered affirmatively, and 60 % (n=12) answered negatively.

The way of reporting their condition differs among patients responding to the questionnaire, as shown in Figure 4.

To the question “In the last 2 weeks have you had negative feelings towards yourself - or that are you a loser or

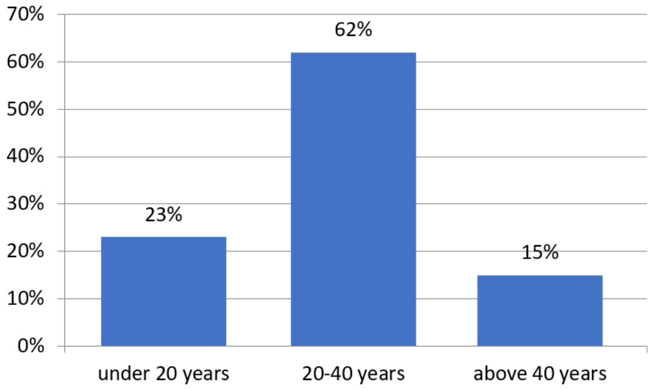

Fig. 1. Distribution of patients by number of years of exposure to respiratory pollutants

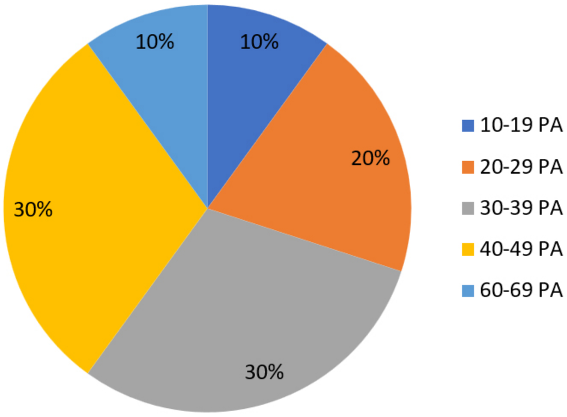

Fig. 2. Percentage distribution of packets- year of cigarettes smoked by former smokers.

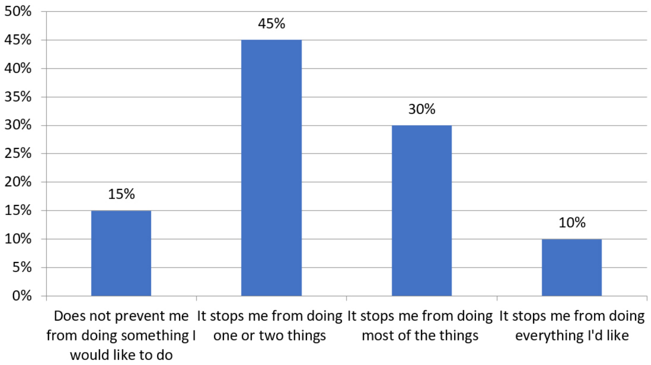

Fig. 3. Assessment of respiratory distress according to responses provided by patients.

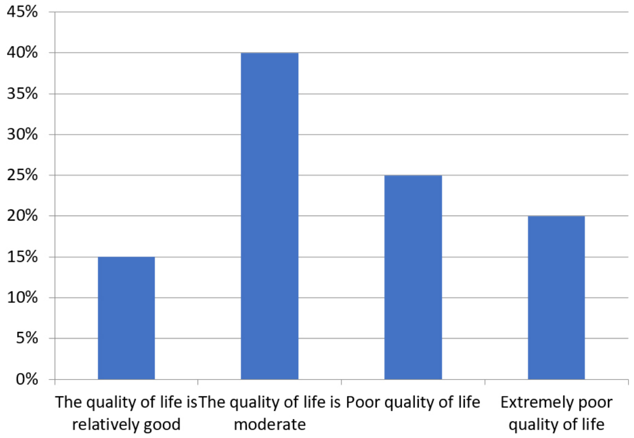

Fig. 4. Patient's way of relating to their condition.

that have you disappointed yourself or your family?", 80 % have answered "never", 5 % "few days" and 15 % have replied "almost daily". Also, 30% of patients had difficulty concentrating almost daily. To the question "In the last 2 weeks have you had thoughts that you would be better off dead or the thought of harming yourself?",85% of patients answered at all, 10 % a few days and 5 % almost daily. The PHQ-9 questionnaire results (Table 1) reveal that the majority of patients (65%) experienced no, minimal, or mild depressive symptoms. However, 35% of patients reported moderate to severe depression, with 20% reaching the severe category. These findings suggest that clinically relevant depressive symptomatology is highly prevalent in COPD patients and may contribute to impaired quality of life and worse clinical outcomes.

Figure 5 indicates that 45% (n=9) patients reported never experiencing feelings of sadness, depression or despair in the past two weeks, whereas 35% (n=7) experienced such symptoms on several days and 20% (n=4) almost daily. The results underscore the psychological burden of COPD and highlight the need for routine mental health assessment in this population.

Interview results. Qualitative study

The first patient (69 years, COPD for 20 years, stage IV currently, severe depression and quality of life is very poor). The patient accuses deep feelings of sadness, discouragement and disappointment for several reasons: "in 1995 I lost an apartment, my wife died of grief, and I had a hemiparesis". "Since then, I've only lived in rent. I'm all alone". He sleeps 2-3h/ night, wakes up very restless, constantly thinking about the past, has strong regrets about the lost home.

The patient evaluates their quality of life with grade 4, and life satisfaction with grade 2. "I have no more joys in life"; "I like to dance, fish, sports, and music". Most of all, they lack interaction with people. "I was a lathe; I liked to go to work because there we were like a family." All my life I was surrounded by people, and now "all day long I stay at home" "I do nothing anymore". Currently, the only activities that bring him pleasure is to watch television and read the Bible "The Lord urges us to resist, the Lord listens and heals us". He says that he has not lost his purpose in life for religious reasons and that he does not live with his family but has a good relationship with his children.

Second patient (89 years, COPD for 25-30 years, stage II currently, moderate quality of life, no/minimal depression). The patient declares that he has a very good relationship with his family, communicates with his wife and children and sleeps well at night. It can focus on daily activities and is active throughout the day. He does not accuse signs of sadness, hopelessness or disappointment ("Laugh and joke over") and has not lost his purpose in life ("How will it be, so it will be, good that I can live"). The patient said he had given up several things since he became ill, but he did not feel affected by this "what is not working, should not be forced". He rated his life satisfaction with note 9, and his quality of life with note 8. "The disease didn't really affect my life, because I didn't notice, I was happy with the things I was doing ", "i didn't disqualify myself", "as it is now, it's fine".

Table I.Questionnaire results PHQ-9

Percentage results of the PHQ-9 questionnaire	
No or minimal depression	30%
Mild depression	35%
Moderate depression	10%
Moderate to severe depression	5%
Severe depression	20%

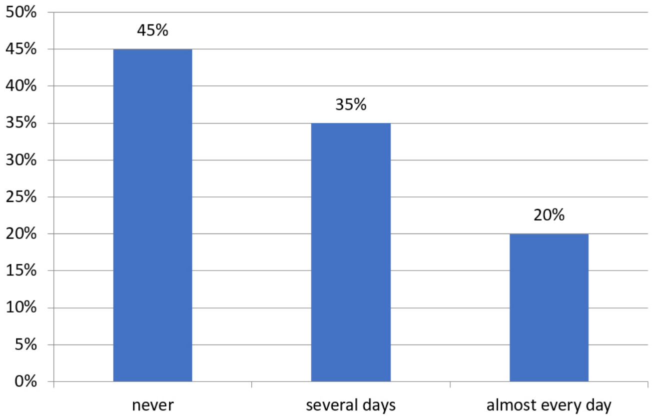

Fig. 5. „In the last 2 weeks, have you had feelings of sadness, depression, or despair"?

The third patient (59 years, COPD of 15 years, stage II at present, severe depression, very poor quality of life) accuses feelings of sadness, hopelessness, despair due to the condition and lack of power to focus on daily activities. There are times when it feels like it no longer has a purpose in life "there is nothing I can do" "I'm in need of constant help". Sleep 2h/night in the presence of hypnotic treatment. He is constantly thinking about the family and children "I have 9 children, one of my children is on dialysis, one has insulin-dependent diabetes, one has rheumatic disease". The patient says that the relationship with his family and friends was not influenced by the lung condition and currently communicates a lot with his wife and children.

Fourth patient (47 years, COPD 17 years, stage 4 currently, mild depression, moderate quality of life). The patient smokes for 31 years, 40 PY, shows feelings of guilt, but did not try to stop smoking "mentally helps me, calms me ". In general, he doesn't experience sadness, only "when I catch a cold and have trouble breathing". He quit his job, he can no longer help his parents at work, but "it does not affect me what I cannot do, I do as much as I can, I got used to it". Currently He enjoys spending time with his family, "bringing children to school, going shopping with his wife, not staying in the house". He sleeps well, communicates with his wife a lot, "I'm never alone". The patient evaluates his life satisfaction with the grade 6-7, and the quality of life with 8-9.

Fifth patient (69 years, COPD 21 years, stage 2 currently, severe depression, quality of life is poor). It feels hopeless "I have to take great care of myself not to catch a cold, I am not allowed to work, if I work, I get tired very hard". The patient feels disgusted "when I go home, I know I will feel the same way", the hospital experience gives him peace, safety, protection. He feels that he no longer has a purpose in life because of the disease, but "don't tell anyone". The patient evaluates their satisfaction with life by grade 5, and quality of life by grade 3. "I would change everything; I would do everything I've done before. Whatever I do, I don't want to be like this anymore, don't want to feel tired"; "I like to communicate, to joke, to be surrounded by people", but now, there are no such moments "I am at the hospital, they are at home. I don't want him to know about me. I speak only with my family ". The condition did not affect his relationships with friends/family, but he also affirms that "I do not want to talk about how I feel" and "I have disappointed my wife, I cannot offer her help". He sleeps 1-2h/night in the presence of hypnotic treatment. He is constantly thinking about what he could have done if he was healthy. He is currently enjoying watching television and driving.

Discussions

Data collected by applying the PHQ-9 questionnaire showed that most patients experience mild depression. Affective manifestations such as feelings of sadness, depression, despair, disappointment, the thought of harm, decreased interest in doing things, difficulty falling asleep or continuing to sleep are often absent or minimally expressed, and mental suffering is predominantly evidenced by somatic symptomatology and functional limitations as 40% claim that they feel almost daily tiredness or lack of energy, and 45% shows a significant reduction in movement speed and speech rhythm or the opposite, a state of restlessness or excessive agitation.

The PHQ-9 questionnaire indicates that all patients have at least a minimal degree of depression (20% have severe depression). However, it turns out that only one patient has been clinically diagnosed with depressive disorder. In the study, it was noted that the interviews brought several important advantages regarding the collection of information related to emotional health compared to the quantitative methods used classically, such as standardized questionnaires. One of the most important aspects noted is related to the degree of openness of patients to the interviewer. They showed confidence in the people in the room and were eager to talk about the impact of the disease on their lives, which is essential for getting detailed and honest answers. The existence of people who listen to them, validate their expressed emotions and show empathy helped create an environment conducive to authentic communication and also to obtain details that could be difficult to capture in a questionnaire. Also, during the dialogue, we managed to clarify, in real time, misunderstood questions and possible misunderstandings from the patient. In some cases, it was necessary to adjust our expression to the level of understanding of the patient, we detailed the meaning of the terms used and clarified the content of the inquiries. Face-to-face communication also allowed us to ask additional questions to better capture the patient's emotions, but which were not originally included in the question guide.

Another advantage of the interview is that it gave us the chance to notice elements of nonverbal communication, such as tone of voice, facial expressions, gestures or the posture of patients. This information completes the verbal message and captures topics of the discussion that are uncomfortable or with a more pronounced impact on the interlocutor. At the same time, we managed to obtain additional contextual information about their living environment, social difficulties, family relationships, how they adapted to the disease, what motivates them and what helps them in difficult times. These details are essential for both a global understanding of the quality of life of patients with COPD, and in the course of the disease, as depression is common among people with chronic diseases and negatively influences disease monitoring, adherence to treatment and clinical outcomes. Patients with depression have a high risk of complications and mortality [6,12].

Both the interviews and the results of the SGRQ-C questionnaire show that patients have a very high level of family support, do not feel like a burden to them and 50% of them feel that they can control the lung condition [13].

What significantly affects them is related to changes that have occurred in their lives since they were diagnosed with COPD [14,15].

Isolation, lack of communication, interaction with people and feeling of limitation are some of the most recurring changes experienced by patients (“I was a lathe, I liked to go to work because we were like a family there”; “I have to take great care not to catch a cold, I am not allowed to work, if I work I get tired very much”; “I always need help”). Poor communication can be a cause of loneliness, but some people refuse to talk about how they feel. (“I am at the hospital; they are at home. I don’t want them to know about me.”). The way the patients have adapted to these changes makes their lives continue to be beautiful or less pleasant. Those who said “I didn’t disqualify myself”; “what I can’t do doesn’t affect me, I do what I can, I’m used to it”; “laugh and joke beyond measure “;” what doesn’t work should not be forced”; „As it will be, so it will be, as one can live” are those who have accepted their condition, enjoyed life and therefore also exhibited a reduced degree of depression. Opposite with these are those patients who feel like “I have no more joys in life”; “I have disappointed my wife, I cannot offer her help”; “I do not want to talk about how I feel”; “there is nothing I can do”, “always need help”. In these cases, there is a tendency to resign, to focus on the unpleasant aspects of the present, losing the power to fight for the improvement of the quality of life. This category of patients also presents insomnia, accusing the existence of intrusive thoughts, focused on regrets, past events and persistent self-analysis. They interfere with the quality of sleep, leading to difficulties in initiating and maintaining sleep. The experience of hospitalization is perceived differently by each patient, depending on their personal context, emotional peculiarities and history of the disease. Some patients perceive the hospital environment as a safe space due to the presence of medical staff and permanent access to specialized care, aspects that reduce anxiety associated with possible complications (when they go home, they know I will be the same). Instead, other patients feel hospitalization as a difficult period, associated with isolation, sadness, and family longing. The main motivations of patients are related to family and religion. “The Lord urges us to resist, the Lord listens and heals us”[16].

Future Implications

1. Routine mental health screening in COPD clinics.
2. Medication review protocols including psychotropic–bronchodilator interactions.
3. Occupational exposure history should guide tailored interventions.
4. Integrated behavioral strategies (mood, adherence, inhaler technique)

Conclusions

A more detailed description of the impact of COPD on patients both physically and emotionally can be gained by combining quantitative and qualitative assessment. A mixed-methods approach revealed that depressive symptoms, occupational exposures and unmonitored psychotropic medication converge to impair quality of life and treatment adherence in COPD. Systematic psychological assessment, multidisciplinary medication review and exposure-tailored counselling should be embedded in care pathways.

Abbreviations

COPD - Chronic Obstructive Pulmonary Disease
ACO - Asthma–COPD Overlap
ERS - European Respiratory Society
SGRQ-C - COPD-adapted Saint George Questionnaire
PHQ-9 - Patient Health Questionnaire-9
SSRIs - Selective Serotonin Reuptake Inhibitors
TCAs - Tricyclic Antidepressants
LAMAs - Long-Acting Muscarinic Antagonists
QT - Quartile Time

Author Contributions

All authors contributed equally to study design, data collection, analysis and manuscript writing.

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Conflict of Interest

None to declare.

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