



## Depression and anxiety symptoms in Spanish adult patients with cystic fibrosis: associations with health-related quality of life ☆☆☆☆☆☆☆☆☆



C. Oliveira, M.D., Ph.D.<sup>a</sup>, A. Sole, M.D., Ph.D.<sup>b</sup>, R.M. Girón, M.D., Ph.D.<sup>c</sup>, E. Quintana-Gallego, M.D.<sup>d,e</sup>, P. Mondejar, M.D.<sup>f</sup>, F. Baranda, M.D.<sup>g</sup>, A. Alvarez, M.D.<sup>h</sup>, C. Prados, M.D., Ph.D.<sup>i</sup>, J. Rodríguez-González, M.D.<sup>j</sup>, I. Herrero-Labarga, M.D.<sup>k</sup>, A. Quittner, Ph.D.<sup>l</sup>, G. Oliveira, M.D., Ph.D.<sup>m,n,\*</sup>

<sup>a</sup> Pneumology, Malaga Regional University Hospital, Instituto de Biomedicina de Málaga (IBIMA), Málaga University, Spain

<sup>b</sup> Lung Transplant and Cystic Fibrosis Unit, University and Politecnical Hospital la Fe, Valencia, Spain

<sup>c</sup> Pneumology Department, La Princesa Institute for Health Research, La Princesa University Hospital, Madrid, Spain

<sup>d</sup> Cystic Fibrosis Unit Unidad Médico-Quirúrgica de Enfermedades Respiratorias, Instituto de Biomedicina de Sevilla (IBIS), University Hospital Virgen del Rocío/Sevilla University, Sevilla, Spain

<sup>e</sup> CIBER de Enfermedades Respiratorias (CIBERES), Instituto de Salud Carlos III, Madrid, Spain

<sup>f</sup> Pediatric Pneumology and Cystic Fibrosis Unit, University Hospital Virgen de la Arrixaca, Murcia, Spain

<sup>g</sup> Pneumology, Cystic Fibrosis Unit, Hospital de Cruces, Vizcaya, Spain

<sup>h</sup> Adult Cystic Fibrosis Unit, Pneumology Department, Hospital Universitari Vall d'Hebron, Vall d'Hebron Institut de Recerca (VHIR), Barcelona, Spain

<sup>i</sup> Cystic Fibrosis Unit, Pneumology, University Hospital La Paz, Madrid, Spain

<sup>j</sup> Pneumology, Hospital Ntra. Sra de Candelaria, Santa Cruz de Tenerife, Spain

<sup>k</sup> Pneumology, Hospital Miguel Servet, Zaragoza, Spain

<sup>l</sup> Department of Psychology, Pediatrics, University of Miami, USA

<sup>m</sup> Endocrinology and Nutrition, Malaga Regional University Hospital, Instituto de Biomedicina de Málaga (IBIMA), Málaga University, Spain

<sup>n</sup> CIBERDEM, CIBER of Diabetes and Associated Metabolic Diseases (Instituto de Salud Carlos III: CB07/08/0019)

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### ABSTRACT

**Background:** Cystic fibrosis (CF) is a chronic disease with an impact on the quality of life. Self-reported symptoms of depression and anxiety were assessed in the Spanish cohort of the International Epidemiological Study on Depression and Anxiety in patients with CF (International Depression-Anxiety Epidemiological Study) and their relationship with health status and health-related quality of life (HRQoL) was evaluated.

**Methods:** This cross-sectional study recruited adult patients with CF at 10 Spanish centers. Patients completed the Hospital Anxiety and Depression Scale (HADS) and the Revised Cystic Fibrosis Questionnaire. Demographic and health data were recorded from medical charts. Logistic regression was used to determine the predictors of elevated symptoms of depression and anxiety (HADS $\geq$ 8).

**Results:** Of the 336 participants recruited (mean age, 28.1 years; 48.2% women), 41 (12.2%) had elevated depression-related scores, and 100 (29.7%) had elevated anxiety-related scores (HADS $\geq$ 8). After adjusting for confounders, only less education, intravenous antibiotics, psychiatric medications and psychotherapy were significantly associated with elevated psychological symptoms. Specifically, regardless of lung function, patients who were depressed or anxious reported worse HRQoL.

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☆☆☆ Study protocols were approved by local ethics committees at all CF centers.

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\* Corresponding author at: Endocrinology and Nutrition Service, Nutrition Unit, Malaga Regional University Hospital, Instituto de Biomedicina de Málaga (IBIMA), Málaga University, Avenida Carlos Haya, Málaga, 29010, Spain. Tel.: +34-952286704; fax: +34-620974470.

E-mail addresses: [casi1547@separ.es](mailto:casi1547@separ.es) (C. Oliveira), [sole\\_amp@gva.es](mailto:sole_amp@gva.es) (A. Sole), [rmgiron@gmail.com](mailto:rmgiron@gmail.com) (R.M. Girón), [esther.quintana@telefonica.net](mailto:esther.quintana@telefonica.net) (E. Quintana-Gallego),

[pmondejarlopez@yahoo.es](mailto:pmondejarlopez@yahoo.es) (P. Mondejar), [felixmaria.barandagarcia@osakidetza.net](mailto:felixmaria.barandagarcia@osakidetza.net), [felixbaranda@outlook.com](mailto:felixbaranda@outlook.com) (F. Baranda), [aalvarez@vhebron.net](mailto:aalvarez@vhebron.net) (A. Alvarez),

[conchaprados@gmail.com](mailto:conchaprados@gmail.com) (C. Prados), [jesusrgte@terra.es](mailto:jesusrgte@terra.es), [jesusrgte@gmail.com](mailto:jesusrgte@gmail.com) (J. Rodríguez-González), [miherrero@salud.aragon.es](mailto:miherrero@salud.aragon.es) (I. Herrero-Labarga), [aquittner@miami.edu](mailto:aquittner@miami.edu)

(A. Quittner), [gabrielm.oliveira.sspa@juntadeandalucia.es](mailto:gabrielm.oliveira.sspa@juntadeandalucia.es), [gabrielm.oliveira.sspa@juntadeandalucia.es](mailto:gabrielm.oliveira.sspa@juntadeandalucia.es), [gabrieloliveiracasa@gmail.com](mailto:gabrieloliveiracasa@gmail.com) (G. Oliveira).

**Conclusions:** The prevalence of elevated symptoms of depression and anxiety was high in Spanish adult patients with CF, and these symptoms were associated with a decreased HRQoL.

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## 1. Introduction

Cystic fibrosis (CF) is a genetic autosomal recessive disease which varies greatly in degrees of severity and is currently a chronic multisystemic disease with a median survival of almost 50 years and a great impact on the quality of life [1,2]. The use of questionnaires concerning quality of life gives a perception of the severity of the disease from the patient's viewpoint. Therefore, although some parameters such as the forced expiratory volume in the first second (FEV1) or the body mass index (BMI) are useful for predictions about mortality and morbidity, they are not strongly predictive of how patients are functioning and feeling in their everyday lives [3–5].

Meta-analyses and systematic reviews have indicated that patients with chronic diseases are at increased risk of depression and anxiety [6,7]. These psychiatric disorders are often underdiagnosed [8]. In addition, a high prevalence of these symptoms has been reported in patients with CF [9–17] and has been associated with a number of negative consequences and health outcomes, including worse adherence [12–19], worse pulmonary function [9,11,14,20,21], increased hospitalizations and healthcare costs [16,17,19] and decreased health-related quality of life (HRQoL) [9,10,14]. In a previous study conducted by our group, the presence of depressive and anxiety symptoms was associated with a lower quality of life even when considered independently from lung function [22,23]. The recently published results of the International Depression Epidemiological Study (TIDES) [17] on the prevalence of depression and anxiety in patients with CF and parent caregivers (which included data of Spanish patients) indicated high rates of both disorders in comparison with data reported for the general population. Using The Hospital Anxiety and Depression Scale (HADS) as a screening method, rates of depression were 5% in adolescent patients and 13% in adults. Rates of anxiety were 22% in adolescents and 32% in adults. Those found in the parent caregivers were even higher, depression in 20% of mothers and 18% of fathers and anxiety in 48% of mothers and 36% of fathers [17].

The aims of this study were to measure symptoms of depression and anxiety in a large sample of Spanish adult patients with CF and evaluate their relationship to demographics, health status and HRQoL. Symptoms of depression and anxiety were assessed in the Spanish cohort of the International Epidemiological Study [17] on Depression and Anxiety in patients with CF (TIDES).

Depression and anxiety have a great influence on quality of life in patients with CF, sometimes even more than physical variables [22,23]. Up to now, only a few monocentric studies have evaluated the relationship between symptoms of depression/anxiety and quality of life in patients with CF. These studies had a small sample size [9,10,14,23] or included patients who had Non-CF-Bronchiectasis [22]. One of the aims of our study is to assess it in a larger and more homogeneous sample. On the other hand, the TIDES is a multicentric study with a large sample size in which was evaluated the symptoms of depression and anxiety in patients with CF but not the relationship between both and quality of life, so our study is a more in-depth analysis. Therefore, nowadays, this is the largest sample of pure CF patients in which comparisons between quality of life and depression/anxiety have been made.

## 2. Methods

### 2.1. Procedure

This cross-sectional study recruited adult patients with CF at 10 representative Spanish centers. The opportunity to participate was

offered to all patients at their scheduled consultation in this period of time. A total of 336 patients with CF who fulfilled the inclusion criteria agreed to participate (approximately 90%).

Study protocols were approved by local ethics committees at all CF centers. Data were collected consecutively between July 2011 and February 2012, although not all centers started at the same time. Inclusion criteria were patients older than 18 years of age with confirmed diagnosis of CF and screening during stable clinic visits. After obtaining consent, a clinical examination was carried out to confirm that the patients were in a stable phase. If at this time they had a respiratory exacerbation or a recent hospital admission, their participation was postponed for at least 60 days until any acute illness was resolved. They then completed a basic demographic questionnaire in addition to the screening measures (including spirometry). Depression and anxiety screening measures were scored immediately by trained staff members to identify clinically elevated scores; referrals were provided if necessary. Patients who had received a solid organ transplant were excluded.

### 2.2. Measures

#### 2.2.1. Demographic and medical characteristics

Anthropometric and demographic variables recorded included: BMI, age, gender, educational level (no education or just primary studies/more than primary studies), employment status (unemployed/not studying or employed/studying) and marital/partner status (with/without). Indicators of physical health status were recorded from medical charts (diabetes, pancreatic insufficiency, microorganism colonization, enteric nutrition supplements and listed for transplant). Number of exacerbations, hospital admissions and hemoptysis/pneumothorax in the 6 months prior to the evaluation were also utilized in the analyses. Spirometry was also performed. Information about pharmacological and psychological treatment of depression and anxiety was collected.

#### 2.2.2. Hospital Anxiety and Depression Scale [22,24,25]

Depression and anxiety screening measures were scored immediately by trained staff members to identify clinically elevated scores; referrals were provided if necessary. The HADS is a 14-item instrument; 7 questions measure depression, and 7 measure anxiety [24]. It has extensive reliability and validity data and was designed specifically for patients with chronic medical conditions (i.e., removal of somatic items). Respondents indicated the severity of each symptom on a 4-point rating scale (0–3) over the past week; maximum score is 21; participants were categorized using established cutoff scores. A score of less than 8 is considered a negative result in the screening. The Spanish version of the HADS has good internal consistency and external validity, with favorable sensitivity and specificity in identifying cases of psychiatric disorders as defined by the *Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* [22,24,25].

#### 2.2.3. Revised Cystic Fibrosis Questionnaire (CFQ-R Spain) for adolescents and adults [5,26]

It consists of 50 items divided into 12 scales: 6 evaluate general aspects of the HRQoL: physical functioning (8 items), role functioning (4 items), vitality (4 items), health perceptions (3 items), emotional functioning (5 items) and social functioning (6 items). Another 6 scales evaluate specific aspects of the CF: body image (3 items), treatment burden (3 items), eating disturbances (3 items), weight (1 item), respiratory symptoms (7 items) and digestive symptoms (3 items). The scores are standardized across 12 scales, ranging from 0 to 100, with

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