

## Research Article

# Association between Family Typology and Depression in Patients with Chronic Obstructive Pulmonary Disease in Tijuana, Mexico

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## Abstract

**Background:** Chronic Obstructive Pulmonary Disease (COPD) has prevalence in Mexico of 7.8%. The prevalence of a depressive episode increases with the severity of COPD, directly affecting the patient and their family.

**Aim:** The purpose of this study is to determine the association between family characteristics and depression in patients with COPD in Family Medicine Unit #27 (FMU 27) in Tijuana, Mexico.

**Design and Setting:** Analytic cross-sectional study.

**Methods:** Analytical cross-sectional study. It was carried out in FMU 27, between October and December 2019. 132 patients with a diagnosis of COPD were evaluated, the family typology was measured with the classification of the Mexican Council of Family Medicine, family functionality was determined with family APGAR and the degree of depression by the Zung test. In descriptive statistics we use frequencies and percentages for qualitative variables; for quantitative mean and standard deviation. The Chi-square test was used to test differences between groups, a  $p < 0.05$  was considered statistically significant.

**Results:** A mean age of 66 years was obtained; the most frequent gender was female. 52% of the patients had depressive symptoms. Statistical significance was found when associating family functionality and depression.

**Conclusion:** We highlight the importance of our intervention through screening and support groups in COPD patients to reduce the burden on the health system in the short and long term.

**Keywords:** Depression; COPD; Family

## Introduction

Chronic Obstructive Pulmonary Disease (COPD) is a disease characterized by the presence of persistent respiratory symptoms and airflow limitation due to alterations in the airways, usually produced by significant exposure to harmful particles or gases [1]. Spirometry is necessary to establish the diagnosis; a FEV1/FVC ratio  $< 0.70$  after bronchodilator testing confirms the presence of persistent airflow limitation [1]. It is currently the fourth leading cause of death in the world but it is projected to be the third by 2020 [2]. Mexico has a prevalence of 7.8% in people over 40 years of age and it increases considerably with age, 18.4% in people over 60 years versus 4.5% in people between 50 and 59 years of age. This disease is related to psychiatric disorders such as depression secondary to the functional limitation that causes [3].

Depression is a disease that combines predominantly affective, cognitive and somatic symptoms [4], according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), to establish the diagnosis of Major Depression, a period of at least 2 consecutive weeks in which the person manifests a minimum of 5 symptoms, of which at least 1 must be depressed mood and decreased interest or pleasure in all or almost all activities [5]. The Zung Depression Scale,

created in 1965, is currently used as a screening tool for depression [6]. Concomitant chronic diseases are frequent in patients with COPD and must be treated, because they are associated with higher mortality, greater number and duration of hospitalizations and constitute one of the main determinants of the quality of life of these patients [7]. Some studies have shown that depression is up to 30% prevalent in people with COPD [8].

Costa et al carried out a qualitative study, where it was observed that the limitation and losses in the basic and instrumental activities of daily life in these patients are always present and have a serious impact on their quality of life. For this reason, a multidisciplinary care centered on the patient and his family is necessary to overcome and alleviate their functional, emotional and social limitations [9]. Based on the above, the main objective of our research was to determine the association between family characteristics and depression in COPD patients in a primary care center in Tijuana, Mexico.

## Material and Methods

### Study Design and Population

An analytical cross-sectional study was carried out in Tijuana, Baja California, Mexico, between October and December 2019. The research was developed in Family Medicine Unit #27 (FMU 27) of

the Instituto Mexicano del Seguro Social (IMSS); primary care unit and main health care center in the region. 132 patients with diagnosis of COPD, over 40 years of age, gender indistinct and who agreed to participate in the study through informed consent were evaluated. The patients were recruited from the waiting rooms of the family medicine department. Patients with diagnosis of another psychiatric pathology or under treatment with psychotropic drugs were excluded and patients with incomplete information were eliminated.

**Variables**

The collection of variables was done with a standardized data form in two sections, the first section focused on demographic, social and family characteristics of the patient, in this section family functionality (APGAR) and family typology were evaluated according to its development, composition and occupation, the second part included the Zung test for screening depression, a validated instrument with a Cronbach alpha of 0.85; sensitivity 94.7% and specificity 67.0% [10].

**Statistical Analysis**

Descriptive and inferential statistics were used; for qualitative variables, frequencies and percentages and for quantitative, mean and standard deviation. The Chi square test was applied for statistical significance of qualitative variables. The results were evaluated with 95% confidence intervals, a  $p < 0.05$  was considered significant. For data analysis, the IBM SPSS program, version 21 (Armonk, NY, USA) was used.

**Ethics**

The study was approved by the Local Committee for Ethics and Health Research #204; with registration number R-2019-204-030. The research was conducted under the General Health Law on Health Research, the Declaration of Helsinki and Bioethical principles. The patients signed informed consent.

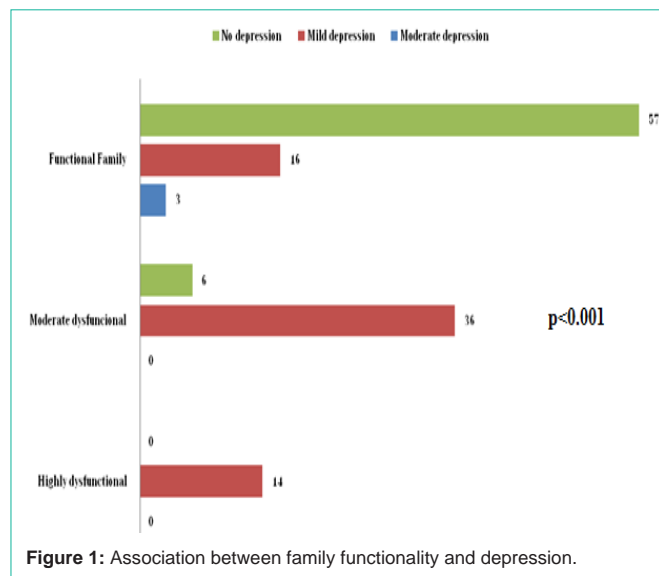
**Results**

132 patients were included in the final sample; the mean age was  $66 \pm 3.0$  years. Regarding the sociodemographic characteristics, the distribution by gender was 61 men and 71 women, according to their marital status it was observed that 46% (n= 61) were married, 23% (n= 30) widowed, 17% (n= 23) union free, 9% (n= 12) single and 5% (n= 6) divorced; 48% (n= 63) were retired. The results of depression screening scale (Zung Test) shown that 50% (n= 66) of the patients present symptoms of mild depression, 2% (n= 3) moderate depression and 48% (n= 63) without depression. No patients with severe depression were found. It was also found that the highest frequency of depression is at 70 years (26.1%) and the lowest at 65 years (3.08%) and is more frequent in the female gender (57%).

According to their family composition (Table 1), most of the patients belong to a simple nuclear family (55%), followed by an extended family (34%), a large nuclear family (5%) and no family (5%). According to their occupation, most of the patients are retired (98% labor sector); in the family typology according to development, 80% (n= 106) belong to a traditional family and 20% (n= 26) to a modern family; in family functionality, 58% (n= 76) were perceived as functional, 31% (n= 42) as moderately dysfunctional and 11% (n= 14) as highly dysfunctional. Finally, an association between family typology and depression was sought, without finding differences

**Table 1:** Basal characteristics of patients.

Variables	n	%
<b>Occupation</b>		
Employee	129	98
Professional	3	2
<b>Family Typology (Development)</b>		
Modern	26	20
Traditional	106	80
<b>Family Typology (Composition)</b>		
Nuclear simple	73	55
Nuclear numerous	7	5
Extended family	45	35
No family	7	5
<b>Family functionality</b>		
Highly dysfunctional	14	10
Moderate dysfunctional	42	32
Functional	76	58



between the groups, but family functionality did show statistically significant differences (Figure 1).

**Discussion and Conclusion**

González-Gutiérrez et al (2016), found a high prevalence of depression (36%) in patients with COPD, a lower result than our study (52%), another result that contrasts with our research is a higher prevalence in men compared to our population where the majority were women. Our result according to gender agrees with the World Health Organization. We found similarities in marital status and family typology according to occupation [7]. Fernandez-Vargas et al (2001), conducted a study with 278 patients, found that the majority were men, married, retired and with a low socioeconomic level, a result similar to ours. In the family APGAR classification, they describe similarity to our study, where functionality predominates,

followed by moderate dysfunction and severe dysfunction, it is important to highlight that although most families had adequate family functionality, the frequency of family dysfunction is alarming [11].

Saavedra-Gonzalez et al (2016), measured the association between depression and family functionality in older adults, finding the following results: average age 72 years, female gender, married, belonging to a nuclear family and traditional development, they concluded that family functionality is not related to the degree of depression, but it was documented that the nuclear family is a protective factor for family dysfunction [12], in our study we observed that most of the families were nuclear and extended, as well as statistical significance in the association between family functionality and depression ( $p < 0.001$ ).

It is important to highlight the health problem represented by the COPD and depression binomial. These diseases produce high costs to health systems and a decrease in the quality of life of patients, however, these alterations could be prevented or reduced by routinely screening questionnaires to corroborate the diagnosis and provide timely treatment. According to our results, we did not observe a statistically significant association between family typology and depression, but we did identify an association between depression and family functionality, with our results there is evidence of the importance of the family environment in the development and evolution of chronic and mental illnesses.

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