



Original Research Article

Psychiatric Morbidity in Patients with COPD and Bronchial Asthma: A Comparative Study

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ABSTRACT

The present study was conducted to compare psychiatric morbidity in patients with chronic obstructive pulmonary disease (COPD), bronchial asthma and healthy individuals. This is a cross sectional comparative case control study assessing the psychopathology in 90 patients, out of which 30 were COPD patients, 30 were bronchial asthma patients and 30 were healthy controls. Data was analyzed by using appropriate statistical analysis. The investigation reveals that there was psychopathology in all the three groups. The psychopathology was significantly more in patients with COPD. Only ten percent of COPD patients have diagnosis of depressive disorder and three percent patients have panic disorder. It was found that psychopathology in bronchial asthma patients are more than those of healthy controls but there was no significant difference was found between COPD and Bronchial Asthma group.

Key words: Psychiatric morbidity, COPD, bronchial asthma, psychopathology.

INTRODUCTION

Patients with COPD are more likely than age-matched peers to report symptoms of distress, especially depression and anxiety. In addition, psychological distress in patients with COPD is associated with impaired quality of life and restricted activities of daily living. Furthermore, functional capacity of patients with COPD is more strongly associated with emotional/psychosocial factors (e.g., depression, anxiety, somatization, low self-esteem, attitudes toward treatment, social support) than with traditional physiological indicators. Although psychological factors are associated with functional performance,

the influence of psychological factors on disease progression and mortality in patients with COPD is still unknown. Neuropsychological functioning is important to be addressed in patients with COPD, because cognitive deficits may contribute to difficulty monitoring the intensity of their symptoms, reduced adherence to their medications, and poor quality of life, as reflected in reduced functional abilities.

Six percent to 42% of patients with COPD have substantial symptoms of depression or clinical depression. Depression in patients with COPD is often marked by feelings of hopelessness and pessimism, reduced sleep, decreased

appetite, increased lethargy, concentration difficulty, and social withdrawal. Depression is associated with impairment in functional abilities and performing activities of daily living, poorer self-reported health, impaired self-management of disease exacerbations, and poor health behaviors. The correlation between depressed mood and disease severity is modest, but depression symptoms are important correlates of perceived functioning, and subclinical depression symptoms are associated with greater self-reported physical disability and poorer quality of life.

Recent estimates indicate a prevalence of anxiety disorders ranging from 2% to over 50% in patients with COPD. Anxiety is associated with reduced functional ability and rehospitalization in patients with chronic lung disease. Symptoms of anxiety are manifested in a variety of ways, including physiological signs of arousal, such as tachycardia, sweating, and dyspnea. Symptoms of anxiety may overlap with symptoms of depression (FIGURE 1).^[1]

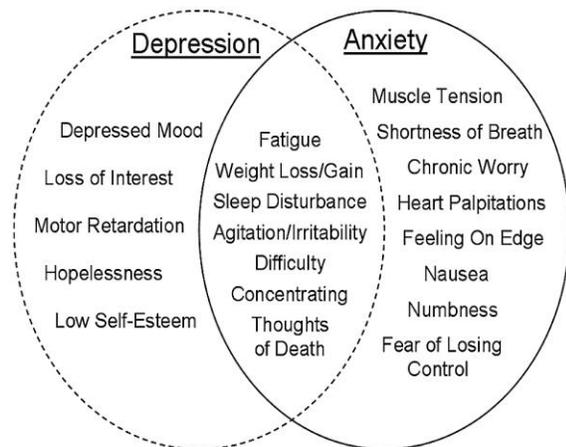


FIGURE 1; Common symptoms of depression (dashed circle) and anxiety (solid circle) in patients with chronic obstructive pulmonary disease.^[1]

A substantial proportion (up to 41%) of patients with COPD may experience panic attacks, characterized by bouts of intense anxiety, physiological arousal,

temporary cognitive impairment, and a strong desire to flee the situation. Interestingly, although patients with panic report more catastrophic misinterpretations of bodily symptoms, they do not differ from patients without panic on measures of physical functioning, disease severity, shortness of breath, or psychological distress. Thus, it has been suggested that panic symptoms may reflect a cognitive interpretation of pulmonary symptoms rather than objective pulmonary status. Fluctuation of pulmonary symptoms associated with daily stressors does not appear to be influenced by anxiety symptoms per se. However, symptoms of panic disorder may distract patients from self-management of disease exacerbations. McSweeney et al (1982) reported that 42% of their COPD patients were primarily depressed and an additional 7% had symptoms of depression. The instrument used for assessment was Minnesota Multiphasic Personality Inventory (MMPI).^[2] Light et al (1985) validated the findings of study done by McSweeney et al (1982) and reported that 2% of the subjects had anxiety.^[3] Yellowlees et al (1987) studied 50 consecutive patients who were admitted to respiratory unit and reported a psychiatric morbidity rate of 58%. They reported a lower rate of depression (16%) but high rate of anxiety (34%) in their sample; panic was particularly prevalent.^[4] Karajgi et al (1990) studied the prevalence of anxiety disorders in 50 consecutive subjects with COPD using the Structured Clinical Interview for DSM III (SCID) revised. They reported that 16% of their COPD patients had an anxiety disorder and in particular panic disorder.^[5] Pollack et al (1996) examined the prevalence and correlates of panic disorder in a group of patients who were referred for pulmonary function testing. The overall prevalence rate of panic disorder among the subgroup that received Structured Clinical

Interview for DSM III R (SCID) was 11%.^[6]

One epidemiological survey was done to identify the prevalence of anxiety, depression and panic fear in adults with asthma compared with that of the general population and to investigate whether there is a specific relationship between asthma and anxiety and authors concluded that a significant minority of people have high levels of panic fear, associated with asthma. However in adults with asthma there is also high prevalence of both generalized anxiety and depression, suggesting that the link of anxiety to asthma may be part of a broader relationship between psychological distress and chronic disease rather than a specific one.^[7]

Study done by Wayne Katon and his colleagues to determine the youth with asthma compared to a control sample of youth and to determine the socio demographic and clinical characteristic associated with having \geq anxiety/ depressive disorders among youth with asthma. They concluded that youth with asthma have an almost two fold higher prevalence of comorbid DSM- IV anxiety and depressive disorders compared to control youth and clinical factors associated with meeting criteria for ≥ 1 anxiety and depressive included more recent asthma diagnosis, more impairment on the asthma physical health scale and increased externalizing behaviours.^[8] A comparative study done by Georgios Moussas and his co-workers to assess anxiety and depression in patients with bronchial asthma, chronic obstructive pulmonary disease and tuberculosis in a general hospital of chest diseases, using Spielberger state trait anxiety scale and Beck depression inventory .

They found that patients with COPD and bronchial asthma had higher depression scores than patients with tuberculosis, and women had higher depression and anxiety scores than men. Depression was positively

correlated with anxiety, age and time from diagnosis and anxiety was positively correlated with depression and time from diagnosis.^[9] These psychological consequences of the disease may play a role in future classification system of COPD.^[10]

MATERIALS AND METHODS

The clinical study was conducted in Father Muller Medical College, Kankanady, Mangalore, which is a multi specialty hospital. All patients attending the outpatient and inpatient facilities of the department of Medicine with a clinical diagnosis of chronic obstructive pulmonary disease constituted the population for the study. The study was conducted from the 1st September 2008 to the 31st of August 2010. The sample for the study consisted of thirty consecutive patients with chronic obstructive pulmonary disease who satisfied the inclusion and exclusion criteria.

Inclusion Criteria

- Patients with clinical diagnosis of COPD according to GOLD's criteria.^[11]
- Male patients.
- Age group between 18 and 50 years

Exclusion Criteria

- Patients with family history or past history of psychiatric illness not attributable to COPD.
- Patients with COPD having other medical disorders like DM, Hypertension, thyroid and other endocrine disorders, renal failure and other chronic debilitating medical conditions known to cause psychiatric morbidity.
- Patients with substance dependence other than smoking.
- Patients who refused to give consent.

Consecutively selected 30 first degree male non affected relatives of COPD patients between age 18 and 50 years and 30 male patients with bronchial asthma between age 18 and 50 years who met the same inclusion and exclusion criteria constituted the control groups for the study.

This study has been cleared by the institutional ethical committee. A written informed consent was obtained from all participants. The socio demographic and clinical variables were recorded in a specific proforma prepared for this clinical study. All

the participants underwent a thorough clinical examination to rule out psychopathology and medical disorders if any. Psychopathology was rated in all the participants using Comprehensive Psychopathological Rating Scale (CPRS), Psychiatric diagnosis was made by using ICD-10-Classification of mental and behavioral disorders, Diagnostic Criteria for Research (DCR-10).

The results obtained were analyzed using T-test, Chi-square test, Analysis of variance (ANOVA) and Bonferroni multiple comparison

RESULTS AND DISCUSSION

Table 1 : Comprehensive Psychopathological Rating Scale

| | | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | ANOVA F | p Value |
|----------|-----------------------------|----|--------|----------------|------------|----------------------------------|-------------|---------|---------|
| | | | | | | Lower Bound | Upper Bound | | |
| REPORTED | COPD | 30 | 9.067 | 6.938 | 1.267 | 6.476 | 11.657 | 18.288 | P<0.001 |
| | Controls (Bronchial Asthma) | 30 | 3.800 | 3.680 | .672 | 2.426 | 5.174 | | |
| | Healthy Controls | 30 | 2.000 | 2.166 | .395 | 1.191 | 2.809 | | |
| | Total | 90 | 4.956 | 5.542 | .584 | 3.795 | 6.116 | | |
| OBSERVED | COPD | 30 | 3.167 | 2.829 | .517 | 2.110 | 4.223 | 17.324 | P<0.001 |
| | Controls (Bronchial Asthma) | 30 | 1.000 | 1.509 | .275 | .437 | 1.563 | | |
| | Healthy Controls | 30 | .433 | .728 | .133 | .162 | .705 | | |
| | Total | 90 | 1.533 | 2.219 | .234 | 1.068 | 1.998 | | |
| TOTAL | COPD | 30 | 12.233 | 9.497 | 1.734 | 8.687 | 15.779 | 19.203 | P<0.001 |
| | Controls (Bronchial Asthma) | 30 | 4.800 | 5.068 | .925 | 2.908 | 6.692 | | |
| | Healthy Controls | 30 | 2.367 | 2.822 | .515 | 1.313 | 3.420 | | |
| | Total | 90 | 6.467 | 7.626 | .804 | 4.869 | 8.064 | | |

P value <0.001-highly significant

Table 2: Multiple Comparisons

| Dependent Variable | (I) Group | (J) Group | Mean Difference (I-J) | Std. Error | P Value |
|--------------------|-----------------------------|-----------------------------|-----------------------|------------|---------|
| REPORTED | COPD | Controls (Bronchial Asthma) | 5.267 | 1.214 | p<0.001 |
| | COPD | Healthy Controls | 7.067 | 1.214 | p<0.001 |
| | Controls (Bronchial Asthma) | Healthy Controls | 1.800 | 1.214 | .426 |
| OBSERVED | COPD | Controls (Bronchial Asthma) | 2.167 | .490 | p<0.001 |
| | COPD | Healthy Controls | 2.733 | .490 | p<0.001 |
| | Controls (Bronchial Asthma) | Healthy Controls | .567 | .490 | .752 |
| TOTAL | COPD | Controls (Bronchial Asthma) | 7.433 | 1.659 | p<0.001 |
| | COPD | Healthy Controls | 9.867 | 1.659 | p<0.001 |
| | Controls (Bronchial Asthma) | Healthy Controls | 2.433 | 1.659 | .438 |

P value <0.001-highly significant

The three samples do not significantly differ in terms of age, marital status, religion, domicile distribution, occupation and income. This fact indicates that the chronic obstructive pulmonary disease (COPD) patients and the two control groups are matched. Table 1 shows there is highly significant difference in domains of reported, observed and total CPRS score among three groups ($p < 0.001$). Table 2 shows there is highly significant difference between COPD and bronchial asthma and between COPD and healthy controls in reported, observed and total CPRS score ($p < 0.001$). There is no difference between bronchial asthma and healthy controls in any of the above domains.

The results of the present investigation reveal that patients with COPD and asthma have higher frequency of psychopathology (psychiatric and psychological symptoms) compared to the healthy controls. Comprehensive psychopathological rating scale (CPRS) is used to rate the severity of psychopathology. Ninety percent of COPD patients, 56% of bronchial asthma patients and about 47% healthy controls scored on CPRS. Earlier studies report that patients with COPD have depressive and anxiety symptoms ranging from 6% -90%. (1-3,12,14) The results of the present study are consistent with those of earlier studies. Earlier studies used Minnesota multiphasic personality inventory (MMPT), general health questionnaire (GHQ), and Primary care evaluation of mental disorders (PRIME -MD), to assess psychopathology in patients with COPD. Present investigator used CPRS to evaluate wider range of psychiatric signs and symptoms. The Present investigation reports psychopathology other than depression and anxiety.

COPD patients have highly significant difference in reported, observed and total psychopathology on CPRS when compared to both healthy controls and

bronchial asthma patients. Patients with bronchial asthma have higher frequency of psychopathology but there is no statistically significant difference compared to healthy controls. Most common symptoms reported by the patients are sadness, inner tension, worrying over trifles, fatigability, lassitude, concentration difficulty, decreases memory, disturbed sleep and decreased sexual interest. Most common observed symptoms are apparent sadness, hostility, distractibility, agitation and slowness of movements. Similar symptoms are reported in an earlier study. (1) The psychiatric disorders are diagnosed in four COPD patients. Among the four three patients have depressive disorder [two patients with moderate depressive episode with somatic syndrome (F32.11) and one with moderated depressive episode without somatic syndrome (F32.10)] and one patient is diagnosed to have panic disorder (F41.0). The diagnosis is made as per ICD-10- Classification of mental and behavioral disorders, (Diagnostic criteria for research (DCR-10). Clinical interview and CPRS is used to assess the symptoms. In the present investigation 10% of COPD patients have depressive disorder. This finding is consistent with those of earlier studies. (2-4,12-15) The present investigator has found that 3% of patients with COPD have panic disorder. Earlier studies also report presence of anxiety disorder in patients with COPD. The earlier studies have reported anxiety disorder ranging from 2 to more than 50% in COPD patients. The present investigation reports only 3% prevalence of panic disorder and it is reported only in one patient out of 30. The present investigator has used Diagnostic Criteria for Research (DCR-10). It could be possible that the present investigation used strict criteria to make a diagnosis of anxiety disorder. Although the present investigator reports psychopathology in 90% of COPD patients and 56% of bronchial asthma patients, the diagnosis of

psychiatric disorders are much less. Some of the earlier studies ^(5,6,13,14) used structured clinical interview for diagnostic and statistical manual of mental disorder (SCID) and composite international diagnostic interview (CIDI) to make clinical diagnosis. Though they have used strict diagnostic criteria, they find a much higher prevalence of anxiety and depressive disorders, in comparison to present study. Present investigation is done only in male adult patients with COPD and bronchial asthma and patients are assessed during remission of symptoms. The homogeneity of the sample of COPD patients may be one of the factors responsible for less prevalence of psychiatric morbidity in present investigation. Present investigator does not find psychiatric disorders in patients with bronchial asthma. Earlier investigators have reported high prevalence of anxiety and depressive disorder in bronchial asthma patients. ^(7,8) Present investigator finds that psychopathology is present in 56% of bronchial asthma patients, but none of them meet criteria for diagnosis of psychiatric disorders. The fact that the present investigator assessed only male patients in a homogenous group may be responsible for this conspicuous absence of psychiatric morbidity. The, present investigation assessed patients during relative remission of symptoms. The present investigation reveals that there is higher prevalence of psychopathology in patients with bronchial asthma but that is not statistically significant when compared to healthy controls. Earlier studies report that significant minority of patients with bronchial asthma have anxiety, panic and depressive symptoms. ^[7,8] They also report that anxiety and depressive disorder (DSM-IV) are common comorbidity in patients with bronchial asthma. One study was conducted in northern India to find out psychiatric morbidity in stable chronic respiratory disorders and they found 44.8% had

psychiatric morbidity. ^[16] In another study done in Holland researchers found that Depressive disorders are significantly higher in COPD patients than controls. ^[17] Findings of the present investigation are not concordant to those of earlier studies. Explanations offered for similar finding in cases of psychopathology may be true for the psychiatric disorders as well. Present investigator has found that psychopathology is significantly more in COPD patients when compared to bronchial asthma patients. This could be attributed to the chronic continuous course of COPD, more disability, poorer quality of life and more hypoxia compared to bronchial asthma patients.

CONCLUSION

Present study concludes that adult male patients with chronic obstructive pulmonary disease (COPD) and bronchial asthma have significant psychopathology in comparison to healthy controls and psychopathology is more in COPD patients in comparison to bronchial asthma patients. Early identification and proper management of psychiatric morbidity in patients with chronic respiratory diseases may improve their quality of life and treatment response.

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