

STUDY OF PSYCHIATRIC CO-MORBIDITY AND QUALITY OF LIFE IN INDIVIDUALS SUFFERING FROM CHRONIC LUNG DISEASE

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ABSTRACT

INTRODUCTION: Chronic lung diseases are quite prevalent these days due to increase in industrial pollutants in air. Diseases like chronic obstructive lung disease, bronchial asthma and pulmonary carcinoma are not only physically disabling but emotionally taxing also. Present study is an attempt to study psychiatric illnesses and quality of life in individuals longstanding lung diseases.

AIMS AND OBJECTIVES: To find out psychiatric comorbidity in individuals suffering from chronic lung diseases. To evaluate quality of life index in these individuals. To study effect of psychiatric comorbidity on quality of life in effected individuals.

METHODOLOGY: Study was conducted in department of psychiatry at Government Medical College and Rajindra Hospital, Patiala. Patients suffering from chronic chest disease were enrolled from department of TB chest. Diagnosis of chronic lung disease was made by 2 consultants from department of TB chest independently. Sociodemographic variables were recorded in sociodemographic proforma. Symptom Check List-80 (SCL-80) was used to screen psychiatric illnesses. Final psychiatric diagnosis was made using International Classification of Diseases for mental and behavioral disorders 10th edition (ICD-10). 16 itemed scale by Burckhardt and colleagues was used to evaluate quality of life. Impact of psychiatric comorbidity was studied on quality of life. All data was analyzed on SPSS 22.0.

OBSERVATIONS: 50.94% patients having chronic lung disease had psychiatric illnesses. Most common psychiatric disorder in such patients was major depressive disorder (39.2%) followed by Generalized Anxiety Disorder (17.5%), somatization (10%) and phobias (8.3%).

Quality of life was poorer (53.71 ± 12.44) in patients suffering from psychiatric comorbidity in chronic chest disease patients compared patients without psychiatric illnesses (66.17 ± 14.37).

CONCLUSION: Psychiatric comorbidities are common in patients suffering from chronic lung diseases. Quality of life is also poor in patients with psychiatric comorbidities and chronic lung diseases compared to without comorbidity.

KEY WORDS: Chronic lung diseases, Psychiatric comorbidity, quality of life, Chronic Obstructive Pulmonary Disease (COPD)

1. INTRODUCTION

Increase in population has led to rapid industrialization and high-level urbanization. With tremendous burden on natural resources, overcrowding and inadequate housing; air pollutants have increased. These pollutants lead to lung diseases like bronchial asthma, chronic obstructive pulmonary disease, lung carcinoma etc.

According to a 2017 survey, 545 million people world-wide (representing 7.4% of world population) are living with chronic lung diseases.^[1] Whereas in India, 65 million people suffer from non-communicable lung diseases, out of which 42 million cases are of only COPD and asthma. The prevalence of chronic bronchitis, bronchial asthma, and COPD is 3.36%, 1.18%, and 4.21%, respectively.^[2]

Various chronic lung diseases include Chronic Obstructive Pulmonary Disease (COPD), bronchial asthma, emphysema, lung cancers, pulmonary tuberculosis etc.^[3] Chronic Obstructive Pulmonary Disease (COPD) is characterized by persistent airflow obstruction associated with inflammation.^[4] Bronchial asthma is defined as chronic inflammatory disorder which manifests as episodes of wheezing, breathlessness, chest tightness and cough. It is due to hyperresponsiveness of airway to pollutants. There is release of biological active inflammatory mediators in response to specific stimuli (exercise, airway cooling, stress). Narrowing of airway is irreversible in COPD and reversible in bronchial asthma.^[5] Emphysema is defined as a pathological, permanent dilatation of distal airways (respiratory bronchioles, alveolar ducts, alveolar sacs) due to destruction walls of the airways without fibrotic changes. It destroys the essential ventilatory units and interrupts the gas exchange.^[6] Lung cancer is leading cause of death across world. Incidence is more in men compared to women. It arises from cells of respiratory epithelium. It can be further divided into small cell lung carcinoma and non-small cell lung carcinoma. Former is highly malignant type of lung cancer derived from cells responsible for neuroendocrine functions. Latter is further divided into 3 pathological subtypes- adenocarcinoma, squamous cell carcinoma and large cell carcinoma.^[7] Tuberculosis of lung is caused by Mycobacterium tuberculosis. Bacteria causes necrotizing granulomatous inflammation in lungs. It causes fever, cough, haemoptysis, chest pain, loss of weight, anorexia and weakness.^[8]

There are various causes of chronic lung diseases. Indoor and outdoor air pollutants are responsible for these diseases. Indoor house chullahs in ancient times were major causes of COPD. Outdoor air pollutants emitted by factories and traffic vehicles also contribute to this. Smoking also causes damage to ciliary function and causes destruction. Genetics factors also contribute to causation of bronchial asthma. Exposure to indoor (dust, mites etc) and outdoor air pollutants (moulds, pollution, pollens) is responsible for this condition.^[9]

Act of breathing shares a close relationship with mind etymologically and clinically. Anxiety disorders cause rapid breathing, tightness in chest and shortness of breath and conversely COPD and brochial asthma also cause secondary anxiety.^[10] There is consequent psycho-

social distress associated with these diseases due to their chronicity. Due to lack of accessible, affordable, and appropriate health care delivery system in rural areas; these conditions remain undiagnosed and untreated much longer. Depression, anxiety and adjustment disorders are common psychiatric comorbidities in chronic respiratory disorders.^[11] Prognosis of these disease is variable. Patients suffering from these conditions are often faced by high economic burden, limitation in activities of daily living and lower health related quality of life.^[12] Due to stigma associated with these diseases and due to shortage mental health care facilities, these patients do not avail treatment for mental health issues.

This study assesses both psychiatric morbidity and quality of life in patients suffering from chronic lung diseases together.

AIMS AND OBJECTIVES

To find out psychiatric comorbidity in individuals suffering from chronic lung diseases.

To evaluate quality of life index in these individuals

To study effect of psychiatric comorbidity on quality of life in effected individuals.

2. MATERIAL AND METHODS

Present observational, cross-sectional study was carried out in Department of Psychiatry at Government Medical College and Rajindra Hospital, Patiala. Patients having chronic lung disease were screened in from department of chest and TB consecutively. Diagnosis of chronic lung disease was made by 2 pulmonologists. SCL-80 was used to screen psychiatric illnesses. Diagnosis was confirmed using ICD-10. 16 itemed scale by Burckhardt and colleagues was used to measure quality of life. Data was analyzed on SPSS-22.0.

INCLUSION CRITERIA

1. Patients of adult age group (18 years and above)
2. Patients having confirmed diagnosis of chronic lung disease.

EXCLUSION CRITERIA

1. Those who cannot consent or refuse to consent
2. Patients previously diagnosed with psychiatric illnesses.
3. Patients with mental retardation.
4. Patients suffering from other medical conditions like epilepsy.
5. Pregnant patients suffering from chronic lung diseases.

INSTRUMENTS USED

SYMPTOM CHECK LIST-80 (SCL-80)

It consists of 80 items, which are divided into following nine subscales- somatization, depression, paranoid ideation, interpersonal ideation, phobic anxiety, anxiety, obsessive compulsive neurosis, anger hostility and additional symptom subscales. Each item is scored on four depending upon severity of symptoms (1-absent, 2-mild, 3-moderate, and 4-severe). Scores of individual subscales are obtained and total score is obtained after adding up scores of all subscales. Total score is further categorized as absent (if score of patients is between 0-25% of maximum score), mild (25-50% of maximum score), moderate (50-75% of maximum score) and severe (75-100% of maximum).

QUALITY OF LIFE INDEX ADAPTED BY BURCKHARDT AND COLLEAGUES.

16 itemed scale was created by American psychologist John Flanagan in 1970. It was further modified by Burckhardt and colleagues. Earlier 15 items of the scale were measured for 5 conceptual domains of quality of life- material and physical wellbeing; relationship with other people; social, community and civic activities; personal development and fulfillment

and recreation. Later one more item was included “independence (ability to do for yourself). Each item is scored on 7-point Likert scale (7-delighted, 6-pleased, 5-mostly satisfied, 4-mixed, 3- mostly dissatisfied, 2- unhappy and 1-terrible). QOL scores are added up to yield a total score. Scores can range from 16 to 112. Higher the scores, better is the quality of life. Average scores of healthy populations are 90.^[13]

OBSERVATIONS

Table:1 Showing number of patients

Number of patients of chronic chest disease screened		265
Patients of chronic chest disease with psychiatric morbidity		135
Patients of chronic chest disease without psychiatric morbidity		130
Patients excluded		25
Group A	Number of patients with psychiatric morbidity enrolled	120
Group B	Number of patients without psychiatry morbidity enrolled	120
Prevalence of psychiatric morbidity among hospitalized chronic chest disease patients- 50.94%		

Table: 2 Socio-demographic profile of patients suffering from chronic chest disease.

Socio-demographic attributes		Group A		Group B		p value
		No.	%age	No.	%age	
Sex	Male	91	75.8	87	72.5	X ² 0.348 P0.555(>0.05) NS
	Female	29	24.2	33	27.5	
Marital status	Married	88	73.3	92	76.7	X ² 0.356 p0.551(>0.05) NS
	Unmarried	32	26.7	28	23.3	
Education	Illiterate	20	18.7	22	18.3	X ² 7.234 p 0.065 (>0.05) NS
	Under Matric	42	35.0	50	41.7	
	Matric to Graduate	32	26.7	37	30.8	
	> Graduate	26	21.7	11	9.2	
Domicile	Urban	55	45.8	59	49.2	X ² 0.267 p 0.605 (>0.05) NS
	Rural	65	54.2	69	50.8	
Occupation	Housewives	28	23.3	29	24.2	X ² 2.029 p 0.566 (>0.05) NS
	Labourers/Farmers	68	67	59	49.2	
	Govt. Employee	20	16.7	25	20.8	
	Professional	4	3.3	7	5.8	

Table: 3 Scores on individual SCL-80 subscale.

SCL Sub Scale			Group A		Group B		Level of Significance
			No.	%age	No.	%age	
Soma-tization	Absent	0-12	56	46.7	120	100	X ² 87.273 p<0.001 HS
	Present	13-48	64	53.3	-	-	
	Mean±SD	-	17.958±13.479	4.716±12.272			
Depression	Absent	0-13	51	42.5	120	100	X ² 96.842

	Present	14-52	69	57.5	-	-	p<0.001
	Mean±SD		20.066±14.744	4.308±2.01			HS
Paranoid	Absent	0-6	116	96.7	120	100	X ² 4.068
	Present	7-24	4	3.3	-	-	P 0.044 (p<0.05)
	Mean±SD		3.700±1.867	3.500±1.598			S
I/P Sensitivity	Absent	0-9	118	98.3	120	100	X ² 2.017
	Present	10-36	2	1.7	-	-	p0.156 (p>0.05)
	Mean±SD		4.691±2.605	4.691±2.480			NS
Phobia	Absent	0-7	96	80.0	120	100	X ² 6.667
	Present	8-28	24	20.0	-	-	p<0.001
	Mean±SD		6.350±5.352	4.025±1.682			HS
Anxiety	Absent	0-10	100	83.3	120	120	X ² 21.818
	Present	11-40	20	16.7	-	-	p<0.001
	Mean±SD		7.158±7.374	4,716±2.034			HS
OCN	Absent	0-10	98	81.7	120	100	X ² 24.220
	Present	11-40	22	18.3	-	-	p<0.001
	Mean±SD		6.625 +4.591	6.336 2.209			HS
Anger/ Hostility	Absent	0-6	102	85	120	100	X ² 19.459
	Present	7-24	18	15	-	-	p< 0.001
	Mean±SD		4.425±3.416	3.508±1.566			HS
Additional	Absent	0-7	74	61.7	120	100	X ² 56.907
	Present	8-24	46	38.3	-	-	p <0.001
	Mean±SD		8.366±6.679	4.100±1.589			HS

Table: 4 Quality of life in patients suffering from chronic lung disease

Variables	Mean SD A	Mean SD B	T	P value
Material comforts home, food, conveniences, financial, security	3.19 ±1.422	3.19 ±1.422	- 3.322	<0.001 (HS)
Health-being physically fit and vigorous	3.27 ±1.482	3.78 ±1.355	- 3.322	
Relationships with parents, siblings & other relatives communicating, visiting, helping	3.60 ±1.595	4.16 ±1.495	- 2.798	<0.05 (S)
Having and rearing children	3.06 ±1.508	3.76 ±1.335	- 3.808	<0.001 (HS)
Close relationships with spouse or significant other	3.68 ±1.604	4.28 ±1.598	- 2.902	<0.001 (S)
Close friends	3.77 ±1.527	4.46 ±1.472	- 3.573	<0.001 (HS)
Helping and encouraging others, volunteering, giving advice	3.53 ±1.250	4.31 ±1.352	- 4.611	<0.001 (HS)
Participating in organizations and public affairs	3.79 ±1.466	4.37 ±1.506	- 2.997	<0.05 (S)
Learning-attending school, improving understanding, getting additional knowledge	3.71 ±1.422	4.38 ±1.415	- 3.640	<0.001 (HS)
Understanding yourself-knowing your assets and limitations	3.71 ±1.411	4.60 ±1.492	- 4.758	<0.001 (HS)

knowing what life is about				
Work job in home	3.38 ±1.372	4.33 ±1.427	- 5.256	<0.001 (HS)
Expressing yourself creatively	3.10 ±1.405	3.63 ±1.316	- 2.988	<0.05 (S)
Socializing-meeting other people, doing things, parties etc.	3.45 ±1.582	4.59 ±1.647	- 5.476	<0.001 (HS)
Reading, listening to music, or observing entertainment	3.02 ±1.309	3.88 ±1.468	- 4.827	<0.001 (HS)
Participating in active recreation	2.79 ±1.107	4.18 ±1.744	- 7.380	<0.001 (HS)
Independence, doing for yourself	2.68 ±1.265	3.69 ±1.800	- 5.062	<0.001 (HS)
Qty Of Life Total	53.71 ±12.446	66.17 ±14.379	- 7.176	<0.001 (HS)

3. DISCUSSION

In this hospital based, cross-sectional observational study; total 265 patients with chronic lung disease were enrolled. Out of which 135 patients had psychiatric comorbidities and 130 did not have. Out of which 25 were excluded due to exclusion criteria. Remaining patients were divided into two groups- 120 patients having psychiatric comorbidity in Group A and 120 without psychiatric comorbidity in Group B.

Study reported prevalence of psychiatric co-morbidity in chronic lung disease patients to be 50.94%. This is due to fact that chronic lung diseases are debilitating and cause psychosocial stress. Treatment cost, inadequate health care delivery system in sub urban areas, hospitalization in tertiary care centers, dependence on caregivers for activities of daily living are all factors causing mental health issues in these patients.

In this study when individual scoring of sub domain of SCL-80 was done, Group A patients had significantly higher mean scores in all parameters except interpersonal sensitivity i.e somatization ($p<0.001$), depression ($p<0.001$), paranoid ($p<0.04$), phobia ($p<0.001$), anxiety ($p<0.001$), obsessive compulsive neurosis ($p<0.001$) and anger/hostility ($p<0.001$) and additional symptoms as compared to group B. Which means most common psychiatric disorder in such patients was major depressive disorder (39.2%) followed by Generalized Anxiety Disorder (17.5%), somatization (10%) and phobias (8.3%) This finding is in concordance with Maurer et al (2008)., where they reported higher incidence of depression and anxiety among individuals with chronic lung diseases.^[14] Diseases like COPD and bronchial asthma present with shortness of breath which further leads to anxiety. Inflammatory markers released in bronchial asthma can lead to depression and other psychiatric diseases.^[15]

Quality of life was significantly lower in patients with psychiatric comorbidity (53.71 ± 12.44) compared to patients without (66.17 ± 14.37). Reason behind this is that these diseases have poorer outcomes. As the disease progresses, patient becomes dependent on family members for activities of daily living. Increased hospitalization rates, poor availability of treatment further leads to lower quality of life index.^[16]

LIMITATIONS OF STUDY

1. Small sample size.
2. Inadvertent selection bias.

STRENGTHS OF STUDY

This study covers both psychiatric comorbidity and quality of life of chronic lung diseases together.

4. CONCLUSION

Psychiatric comorbidities are common in patients suffering from chronic lung diseases. Quality of life is also poor in patients with psychiatric comorbidities and chronic lung diseases. It implies that we need to develop facilities to diagnose and treat these diseases in their early course. Their treatments should be made available in rural areas at affordable cost. Holistic treatment should be prescribed to these patients, which should address mental health issues. Psychiatric diseases should be diagnosed and treated efficiently. Information, Education and Counselling related activities should be carried out to create awareness and decrease stigma.

5. REFERENCES

1. GBD Chronic Respiratory Disease Collaborators. Prevalence and attributable health burden of chronic respiratory diseases, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017. *Lancet Respir Med*. 2020 Jun;8(6):585-596.
2. Sharma V, Gupta RK, Jamwal DS, Raina SK, Langer B, Kumari R. Prevalence of chronic respiratory disorders in a rural area of North West India: A population-based study. *J Family Med Prim Care*. 2016 Apr-Jun;5(2):416-419.
3. Institute of Medicine (US) Committee on a National Surveillance System for Cardiovascular and Select Chronic Diseases. A Nationwide Framework for Surveillance of Cardiovascular and Chronic Lung Diseases. Washington (DC): National Academies Press (US); 2011. 3, Chronic Lung Disease. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK83163/>.
4. O'Reilly S. Chronic Obstructive Pulmonary Disease. *Am J Lifestyle Med*. 2016 Jul 7;11(4):296-302.
5. Agarwal R, Dhooria S, Aggarwal AN, Maturu VN, Sehgal IS, Muthu V, et al. Guidelines for diagnosis and management of bronchial asthma: Joint ICS/NCCP (I) recommendations. *Lung India*. 2015 Apr;32(Suppl 1):S3-S42.)
6. Devasahayam J, LaFreniere K, Naik R. Chronic Emphysema. 2023 Jan 27. In: *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing; 2023.
7. Dela Cruz CS, Tanoue LT, Matthay RA. Lung cancer: epidemiology, etiology, and prevention. *Clin Chest Med*. 2011 Dec;32(4):605-44.
8. Luies L, du Preez I. The Echo of Pulmonary Tuberculosis: Mechanisms of Clinical Symptoms and Other Disease-Induced Systemic Complications. *Clin Microbiol Rev*. 2020 Jul 1;33(4):e00036-20.
9. Shukla SD, Swaroop Vanka K, Chavelier A, Shastri MD, Tambuwala MM, Bakshi HA, Pabreja K, Mahmood MQ, O'Toole RF. Chronic respiratory diseases: An introduction and need for novel drug delivery approaches. *Targeting Chronic Inflammatory Lung Diseases Using Advanced Drug Delivery Systems*. 2020:1-31.
10. Chen Q, Wu C, Gao Y, Chen L, Liu Y. A clinical study on the role of psychosomatic therapy in evaluation and treatment of patients with chronic obstructive pulmonary disease complicated with anxiety-depression disorder. *Int J Clin Exp Med*. 2015 Sep 15;8(9):16613-9.

11. Jain A, Lolak S. Psychiatric aspects of chronic lung disease. *Curr Psychiatry Rep.* 2009 Jun;11(3):219-25.
12. Pati S, Swain S, Patel SK, Chauhan AS, Panda N, Mahapatra P, Pati S. An assessment of health-related quality of life among patients with chronic obstructive pulmonary diseases attending a tertiary care hospital in Bhubaneswar City, India. *J Family Med Prim Care.* 2018 Sep-Oct;7(5):1047-1053.
13. Burckhardt CS, Anderson KL. The Quality of Life Scale (QOLS): reliability, validity, and utilization. *Health Qual Life Outcomes.* 2003 Oct 23;1:60.
14. Maurer J, Rebbapragada V, Borson S, Goldstein R, Kunik ME, Yohannes AM, Hanania NA; ACCP Workshop Panel on Anxiety and Depression in COPD. Anxiety and depression in COPD: current understanding, unanswered questions, and research needs. *Chest.* 2008 Oct;134(4 Suppl):43S-56S.
15. Volpato E, Toniolo S, Pagnini F, Banfi P. The Relationship Between Anxiety, Depression and Treatment Adherence in Chronic Obstructive Pulmonary Disease: A Systematic Review. *Int J Chron Obstruct Pulmon Dis.* 2021 Jul 6;16:2001-2021.
16. Kharbanda S, Anand R. Health-related quality of life in patients with chronic obstructive pulmonary disease: A hospital-based study. *Indian J Med Res.* 2021 Apr;153(4):459-464.