

Psychiatric morbidities in respiratory disorders: a cross sectional report providing insight into consultation-liaison psychiatry services in India

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Author contributions

Roshan Sutar, Akshata Jayachamarajapura Shivananjaiah and Santosh Kumar Chaturvedi did conceptualization and methodology. Roshan Sutar was involved in data collection and analysis along with writing the original draft and visualizations. Santosh Kumar Chaturvedi reviewed, supervised and edited the manuscript.

Competing interests

The authors declare no conflicts of interest.

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Abbreviations

DALY, disability-adjusted life years; TB, treatment of tuberculosis; COPD, Chronic Obstructive Pulmonary Disease; CLP, consultation-liaison psychiatrist; CHAS, current health assessment scale; NDS, nicotine dependence syndrome; NRT, nicotine replacement therapy.

Citation

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Abstract

Background: Respiratory disorders are among the leading disorders contributing to extensive morbidity and mortality worldwide. Disorder variants, like Chronic Obstructive Pulmonary Diseases (COPD) in developed and developing countries, as well as infectious causes, like Tuberculosis (TB) in developing countries, contribute to significant disease burden. The literature points towards the coexistence of psychiatric disorders with respiratory disorders responsible for poorer outcomes. Despite the extensive burden of respiratory disorders and the presence of concurrent psychiatric disorders, studies focusing on their prevalence are limited in India. **Methods:** A cross-sectional psychiatric screening was carried out on sequential patients attending the tertiary respiratory unit over eight months. Those screened positive were interviewed in detail for psychiatric diagnosis and challenges in the management were discussed. Psychiatric diagnosis, pulmonary TB and medical comorbidity were assessed for correlation with demographic and clinical variables and analyzed by using the Chi-square test and logistic regression method using SPSS version 20. **Results:** Psychiatric morbidity was present in 100 out of 350 patients (28.57%). Tuberculosis was the most common diagnosis (46%) in subjects attending the respiratory clinic services while common mental disorders like depression, anxiety, and insomnia were the most common psychiatric concern (88%) in this study. **Conclusion:** Psychiatric disorders and medical morbidities are common in patients with respiratory disorders. Multiple factors determine the treatment adherence in both respiratory and psychiatric disorders. Screening for psychiatric disorders with the help of a consultation-liaison psychiatrist in respiratory units is recommended. Future studies should focus on developing dedicated psychiatry services to enhance overall outcomes in patients with respiratory disorders.

Keywords: psychiatric morbidity; depression; tuberculosis; consultation-liaison psychiatry; respiratory disorders; psychosomatic

Introduction

Respiratory disorders are common and many of them follow a chronic relapsing-remitting course that could affect the mental health of an individual. Substance use in the form of smoking tobacco or alcohol consumption in chronic respiratory conditions affects the treatment response and adherence if left untreated. A significant proportion of disability-adjusted life years (DALY) in India and across the world is constituted by respiratory and psychiatric disorders [1]. Among respiratory disorders, the treatment of tuberculosis (TB) is effective if followed as per the guidelines, however, both TB and psychiatric disorders have been associated with stigma and poor compliance to treatment despite advancements in diagnostic and therapeutic modalities [2]. It is evident that, to date, India continues to fight against tuberculosis and other associated chronic respiratory disorders [3]. In addition, the mental health concerns such as anxiety, depression, substance use, and personality-related factors significantly influence medication compliance, immune status, drug-drug interaction, etc. that needs careful attention during management. Comorbid mental health condition also increases the risk of frequent hospitalization in patients with respiratory disorders due to the reasons mentioned above. Also, depressive and anxiety spectrum disorders often go unnoticed among patients attending respiratory units or general hospitals [4]. The prevalence of depressive disorders and anxiety disorders in patients with Chronic Obstructive Pulmonary Disease (COPD), is quite striking [5-8]. The skill of treating physicians to identify and liaise with a psychiatrist has become necessary to effectively address the burden of mental health concerns among these patients. Alternatively, the involvement of a consultation-liaison psychiatrist (CLP) in the management of respiratory disorders has not been explored in India.

However, limited attempts are made to deliver a collaborative treatment model in respiratory units across India. Currently, there are no existing guidelines for assessment and management of mental health concerns in patients with respiratory disorders and training of physicians to effectively use psychiatric screening tools. In this context, this study examines the magnitude of psychiatric disorders in the respiratory unit through a service delivery model and explores the demographic factors and nuances in the management of mental health concerns thereby furthering the understanding of establishing liaison psychiatry services in developing countries like India.

Materials and methods

The study is cross-sectional observational in design to screen the psychiatric morbidity among the consecutive patients attending the outpatient department of the tertiary respiratory care center in collaboration with the Department of Psychiatry at the tertiary neuropsychiatry center (National Institute of Mental Health and Neurosciences, Bangalore) in south India. The study was approved by the institutional human ethics committee (SDS/CP-IEC/11-02/2014-15). After obtaining written informed consent from the patients, meeting inclusion criteria (diagnosed respiratory illness, either gender, any age) one qualified psychiatrist and one trainee psychiatrist conducted a systematic screening of patients with respiratory disorders using the Current Health Assessment Scale (CHAS)- (27 items with screening questions for major and minor psychiatric disorders) [9] and NIMHANS Screening Tool for Psychological Problems (NST) (7 items validated scale with screening questions for common mental disorders) [10] followed by a structured interview with patient and caregivers as shown in Figure 1. The research was conducted from September 2015 to April 2016. After receiving the consultation from the respiratory physician, a screening followed by a detailed clinical interview and Mental Status Examination was carried out by a psychiatrist. Patients were diagnosed according to the International Classification of Diseases-10th (ICD-10) clinical criteria. The information collected included socio-demographic and clinical details of patients. Frequency and percentage of categorical variables such as gender, diagnosis and

comorbidity were calculated. Mean and standard deviation were calculated for age of the subjects. Association between demographic variables and psychiatric disorders, respiratory disorders and comorbid medical conditions were assessed using Chi square test and logistic regression analysis to determine the significance of factors contributing to such association. Statistical analysis was carried out with the help of the licensed version of Statistical package for Social Sciences (SPSS) version 20 (IBM Corp. Released 2020. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp).

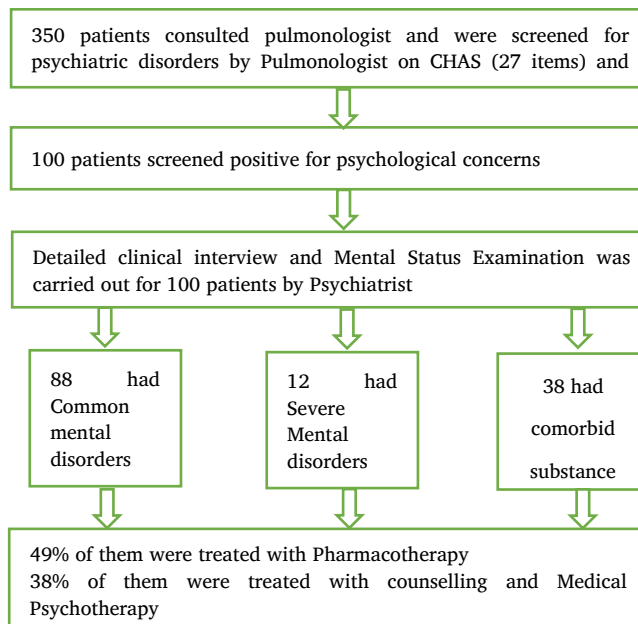


Figure 1 Flow chart depicting the study methodology

Results

Hundred out of 350 subjects (28.57%) were screened positive for psychiatric morbidity, were interviewed in detail for the psychiatric diagnosis according to ICD-10. The Range of a score on NST varied from 5 to 28. In our findings, male 57 (57%) outnumbered female 43 (43%). The mean age of the subjects was 41.23 years (S.D. = 15.83) (Table 1). Tuberculosis was the most common diagnosis (45%) followed by COPD (15%) and other disorders as shown in Figure 2. Strikingly, 48% with respiratory disorders also had comorbid medical disorders such as Diabetes Mellitus (20%), Hypertension (10%), Hypothyroidism (3%), Dyslipidemia (3%), and others (12%). The substance use disorders were highly comorbid among 38 (38%) of subjects with 25% of the disorders were associated with nicotine dependence (chewed, smoked, or sniffed form) and 13% were related to alcohol dependence (including country liquor or Indian Made Foreign Liquor [8] (Table 2), while common mental disorders such as depressive disorder, anxiety disorders, and insomnia were most common, 76 (88%) among all the psychiatric disorders. Depressive spectrum disorders included major depressive episodes, adjustment disorder with depressive reaction, dysthymia, and other mood disorders comprising 42% of the subjects followed by anxiety spectrum disorders (22%) including generalized anxiety disorder, panic disorder, health, and other specific anxiety disorders. Insomnia and somatoform disorders were found to be 12% each (Table 2) Only 7% of subjects had drug-induced psychotic symptoms. Almost half (49%) of subjects required psychopharmacological intervention including antidepressants, antipsychotics, and benzodiazepines. Medical psychotherapy and counselling were required for 37% of subjects that included motivation enhancement therapy, relapse prevention, sleep hygiene, and supportive psychotherapy. Nicotine dependence Syndrome (NDS) was present in 25% of patients and Nicotine replacement therapy (NRT) was the most common treatment

prescribed for them. Around 13% of the subjects were referred to the tertiary neuropsychiatric center for further management of mental health-related concerns that included a referral to a tobacco cessation clinic, long-term management of substance use disorders, personality assessment, and psychosocial adversities (Table 2).

In terms of association of gender, and marital status of patients with pulmonary TB, and a psychiatric diagnosis, we could not find any statistical significance against a reference category of absent psychiatric diagnosis. Out of 43 participants who were female, 23 had the psychiatric diagnosis and out of 57 male participants, 15 had a psychiatric diagnosis. No significant association of gender was observed with medical comorbidity and the presence of pulmonary tuberculosis. Additionally, marital status was found to be an independent variable which was a significant predictor of the model ($P = 0.020$) against a reference category of absent medical comorbidity. Out of 79 participants who were married, 31 have medical comorbidity while out of 21 unmarried participants, two had a psychiatric diagnosis.

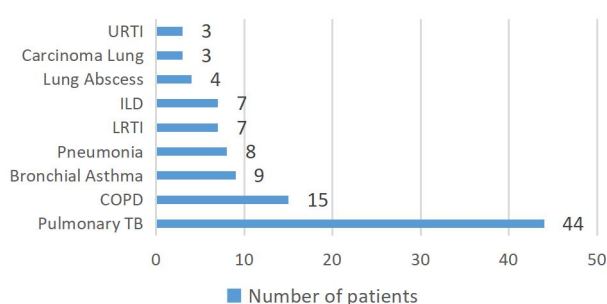


Figure 2 Prevalence of respiratory disorders. URTI, Upper Respiratory Tract Infection; LRTI, Lower Respiratory Tract Infection; TB, Tuberculosis.

Table 1 Demographic details of patients with respiratory disorders

Demographic details (N = 100)		Frequency
Gender	Male	57
	Female	43
Marital status	Married	79
	Single	21
Socio-economic status	USEC	12
	MSEC	24
	LSEC	64
Occupation	Unskilled worker	75
	Skilled worker	14
	Student	9
	Unemployed	2

USEC, Upper Socio-Economic Class; MSEC, Middle Socio-Economic Class; LSEC- Lower Socio, Economic Class.

Table 2 Psychiatric diagnosis including substance use disorders

Psychiatric diagnosis (N = 100)	Frequency
Depressive spectrum disorders	42
Anxiety spectrum disorders	22
Insomnia	12
Somatoform disorder	12
Drug induced psychosis	7
Delirium	3
Catatonia	2
Total	100
Comorbid substance use with a primary psychiatric diagnosis	
Substance use disorders	38
Alcohol Dependence Syndrome (ADS)	13
Nicotine Dependence Syndrome (NDS)	25

Discussion

This study has examined the magnitude of psychiatric disorders in patients attending the respiratory unit. Psychiatric disorders can contribute to inadequate compliance to treatment of medical disorders due to factors such as undiagnosed common mental disorders, substance use, and stigma related to mental illness and these factors share a bidirectional relationship [11, 12]. The effect of poor compliance to ATT due to psychiatric disorders can contribute to the multi-drug resistant status of TB while concurrent alcohol consumption with ATT is associated with the worsening of the adverse drug reaction of the treatment regimen [11, 13]. Further, smoking has been classified as a diagnosable disorder- NDS and patients with respiratory disorders with concomitant smoking if timely diagnosed, could prevent the ongoing damage to the lungs [14].

In this study, men were slightly more in numbers that are supported by the overall increased prevalence of chronic respiratory diseases in males [15]. Most of the males had NDS, though increased use of tobacco in smoked form is rising in women and might contribute to increased rates of COPD and other respiratory diseases in the future [16]. The total psychiatric comorbidity is found to be slightly more than the general population (20%) [17], therefore targeted interventions in this population seem necessary. While the magnitude of common mental disorders was more than the general population, the magnitude of severe mental disorders and substance use disorders were lower than the general population and [17, 18]. In the respiratory unit, substance use, depressive, and anxiety spectrum disorders were most common among all psychiatric disorders. It is important to effectively establish the overlapping clinical symptoms such as fatigue, loss of appetite, lethargy, poor concentration, weakness, and weight loss in depression associated with TB and COPD [12]. Similarly, shortness of breath, choking sensations, fear of dying are overlapping symptoms of anxiety disorders associated with bronchial asthma. In comparison to the previous study, lower numbers of somatoform disorders and sleep disorders were reported in our study [19]. Our findings are supported by the study conducted earlier on outpatient medical services showing neurotic disorders (which have been revised into depressive, anxiety, and somatoform disorders) formed the large subgroup of patients [5].

An attempt has been made to recognize psychiatric disorders in medical intensive care units in contrast to the outpatient sample in our study [6]. However, this study had considered both acute and chronic psychiatric diagnoses such as acute management related to alcohol withdrawal symptoms treated with low dose regimen of benzodiazepines, specifically lorazepam, keeping caution of benzodiazepines associated respiratory compromise [5]. Tablet Mirtazapine was used to control mild alcohol withdrawal symptoms in patients with COPD to avoid respiratory compromise similar to the report published earlier [20]. The use of a non-benzodiazepine substitute has been documented earlier and needs to be studied further in the context of respiratory compromise and liver diseases in a CLP setting [21, 22]. Active liaison with pulmonologist with extended inpatient care was considered in complicated cases for good recovery of physical as well as mental health. Baclofen was the preferred anti-craving agent prescribed given minimal interaction with concomitant alcohol use, low cost of the treatment, and sedative properties without compromising respiratory function, the information was also shared during psychosomatic rounds with physicians.

Nicotine use has clear implications in the psycho-pulmonology setting as increased activity of CYP-450 among smokers can alter the metabolism of bronchodilators, ATT, and psychotropic medications. It is thus advisable to start NRT as one of the evidence-based treatments for NDS [23]. Our study included pulmonary tuberculosis as a major subgroup of subjects in contrast to a recent study that included patients suffering predominantly from COPD, Asthma, and Rhino-sinusitis [23]. Also, previous studies have tried to look more often at depressive disorders, unlike this study where the emphasis was on a broad range of psychiatric disorders [24]. Since comorbid psychiatric illness can interfere with compliance and prognosis of

respiratory conditions as seen in current findings where more than half of the subjects warranted specialized assistance from mental health professionals, we recommend routine psychiatric screening for respiratory disorder patients using simpler tools such as GHQ or PHQ [25, 26]. In the future, we expect further research in this area addressing the need to evolve a shorter version of a scale that can comprehensively screen for all major psychiatric disorders to strengthen the field of consultation-liaison psychiatry in the country. Systematic treatment guidelines should evolve in the future to improve the existing treatment gap in this population.

Limitation

Cases with PTB were over-represented among all respiratory disorders, as the study center also had a tertiary tuberculosis center. No structured interview schedules were used for the psychiatric diagnosis as the study was carried out to extrapolate the service-delivery model. The study was cross-sectional with a single arm and included both acute and chronic cases. Since it is a small sample size with a single center the results have limited generalizability. Personality factors contributing to existing respiratory disorders were not studied.

Conclusion

Our study reflects the importance of regular screening for psychiatric morbidity in patients with respiratory disorders. Considering the time constraints related to routine evaluation by a chest physician, a dedicated consultation-liaison psychiatrist would benefit in effective utilization of the expertise. Also, a CLP team would assist in sensitizing the physicians to identify the psychological needs of their patients to take appropriate steps to treat them. In the end, the authors recommend developing a shorter screening tool in Indian languages for physicians [17], and focus on effective long-term care of patients with respiratory disorders to improve the quality of life of an individual [27].

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