Original paper

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Anxiety and depression among patients at a tertiary care respiratory clinic in Sri Lanka

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Abstract

Background

Chronic respiratory diseases are associated with increased risk of mood and anxiety disorders. These disorders in turn may lead to frequent hospital admissions and lower treatment adherence among patients with respiratory disease.

Aims

The objective of this study was to describe the prevalence of anxiety and depression among patients with chronic lung diseases and their association with socio demographic factors.

Methods

A descriptive cross sectional study was conducted among patients at a respiratory outpatient clinic at the National Hospital for Respiratory Diseases, Welisara. Demographic data was collected using an interviewer administered questionnaire; a self-administered Hospital Anxiety and Depression scale was used to examine for the presence of anxiety or depression. Consecutive patients who gave written informed consent to were included in the study.

Results

A total of 451 patients were participated in the study, of whom 274 (60.8%) were females. The mean age was 57.4 (SD=15.3) years and the majority (74.7%) were married. The education level of 226 (50.1%) was between grade 5 and grade 11. There was no permanent income for 196 (43.5%). The majority had bronchial asthma (60.3%) and 151 (33.5%) had one or more co-morbid medical illness. The mean score for the anxiety component was 6.78 (SD=3.59) and for the depression component it was 7.03 (SD=3.11). Seventy (15.5%) screened positive for anxiety and another 100 (22.2%) were doubtful cases. Sixty five (14.4%) screened positive for depression and another 128 (28.4%) were doubtful cases. Participants who were unmarried, divorced, separated or widowed had significantly higher levels of anxiety compared to those who were married (p=0.005). Patients who had a monthly income also had more anxiety compared to those who did not have an income (p=0.003).

Conclusions

One fifth of the patients attending the respiratory clinic screened positive for anxiety and depression. This indicates the importance of addressing the psychological morbidity among patients with chronic lung disease.

Key words: depression, anxiety, respiratory clinic, bronchial asthma

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Background

Respiratory diseases are the largest single contributor to the global overall burden of disease measured in terms of disability-adjusted life-years loss (1). The two largest contributors to the global burden of respiratory diseases are asthma and chronic obstructive pulmonary disease (COPD) (1, 2). The disease burden due to asthma and COPD is higher in South Asian countries, due to higher rates of these illnesses (3). The burden of lung disease survey reported a 10.5% prevalence of COPD in Sri Lanka, while the world health survey reported a 5.3% prevalence of asthma (4, 5).

Chronic respiratory conditions are associated with an increased risk of mood and anxiety disorders (6). The prevalence of depression among COPD patients was 86% in a tertiary level hospital in West Bengal, India (7). In Tehran, 23% of males and 59% of females with asthma

had severe anxiety and depression (8). Associated depression or anxiety may exacerbate symptoms of respiratory illness and is associated with a poor quality of life and poor outcomes (9, 10). The presence of respiratory diseases and its treatment may also adversely affect the course of mood disorders (9).

Therefore timely diagnosis and treatment of psychiatric comorbidity is very important among these patients, and delay of treatment can also delay recovery from the pulmonary symptoms and may increase the risk of complications (11). Moreover, studies assessing anxiety and depression among patients with chronic airway diseases such as COPD, bronchial asthma, bronchiectasis and interstitial lung diseases (ILD) have been scarce in Sri Lanka. Identification of the extent of the psychological morbidity among these patients with chronic lung disease in Sri Lanka will enable better planning and appropriate interventions, both for better control of lung disease and for improvement of patients' wellbeing.

Therefore the aim of this study was to determine the rates of anxiety and depression among patients with chronic lung diseases and to describe associations (if any) between psychological morbidity and socio demographic parameters.

Methods

This descriptive cross sectional study was conducted at the respiratory outpatient clinic of the National Hospital for Respiratory Diseases of Sri Lanka (NHRD). It was conducted over a period of 2 months from July 2016 onwards, among all patients with chronic lung diseases who attended the respiratory outpatient clinic for follow up. Those who gave written informed consent were included in the study.

The sample size was calculated to detect a prevalence of psychological morbidity of 50%, with a margin of error at 5% and an α error at 5%. The computed sample size of 384 was further inflated to 422 to accommodate a 10% dropout rate, which was then rounded off to 430. We considered the proportion with psychological morbidity as 50% to obtain the maximum required sample size.

All consenting adult patients with COPD, bronchial asthma (BA), bronchiectasis, asthma COPD overlap syndrome (ACOS) or interstitial lung disease (ILD) attending the clinic were recruited until the calculated sample size was reached. Patients who were critically ill, diagnosed to have lung disease for less than 3 months, who could not read and write, and who had a prior diagnosis of mental illness were excluded from the study.

Demographic and illness related information was gathered using an interviewer administered questionnaire. Anxiety and depression were assessed for via the Sinhala and Tamil translations of the Hospital Anxiety Depression Scale (HADS). The HADS was originally developed by Zigmond and Snaith (12). It is a reliable instrument for detecting states of depression and anxiety in hospital medical outpatient clinics and in non-psychiatric populations. Both the Sinhala and Tamil translations of this scale have been validated for use in Sri Lanka (13,14). The scale consists of 14 questions, with 7 questions each to assess for anxiety and depression, respectively. Each item is rated on a 4-point scale ranging from 0 (not at all) to 3 (very often), based on the relative frequency of the symptoms over the preceding week. Possible scores range from 0 to 21 for each subscale. The patients are categorized according to the score of each 7 questions. Patients scoring ≥ 7 are deemed to be non-cases, 8-10 as doubtful cases and ≥ 11 as definite cases.

Ethical clearance was obtained from the Ethics Review Committee of the Faculty of Medicine, University of Kelaniya. During data collection the patient's names and contact details were not obtained and data sheets were kept anonymous.

Results

A total of 451 participants completed the questionnaires. The demographic and clinical characteristics of the participants are summarized in table 1.

The mean HADS score for anxiety among the study population was 6.78 (SD=3.59) and 70 participants (15.5%) screened positive for anxiety, while 100 were doubtful cases. The mean HADS score for depression was 7.03 (SD=3.11) and 65 respondents (14.4%) screened positive for depression, while another 128 (28.4%) were doubtful cases. Eighteen respondents screened positive for both anxiety and depression. The distribution of the HADS scores for anxiety and depression against the type of lung disease is shown in table 2.

The HADS scores for anxiety did not correlate with gender, substance use or type of lung disease (Table 3). However, those who were unmarried, divorced or separated had more anxiety compared to individuals who were married (p=0.005). Participants with a regular monthly income were more anxious compared to individuals with no regular income (p=0.003). Patients with an anxiety disorder were also more likely to have comorbid depressive disorder (p=0.003).

When considering psychological morbidity by age, a higher proportion of individuals above 50 years screened positive for depression (16.2%), compared to those below 50 years of age (9.3%) (p=0.06). However, there was no significant correlation between the HADS scores for depression and socio demographic or clinical factors assessed in this study (p>0.05) (Table 3).

Table 1. Socio demographic and clinical characteristics of participants

Characteristics		Study population (n= 451)
Age(Mean±SD) (Min-Max)		57.41±15.3 (18-92)
Sex	Male Female	177 (39.2%) 274 (60.8%)
Marital status	Married Never married Separated Widowed	337 (74.7%) 39 (8.6%) 1 (0.2%) 10 (2.2%)
Education level	Illiterate Upto grade 5 Grade 6 – Ordinary level Up to Advanced level Diploma Graduate	6 (1.6%) 40 (10.9%) 226 (61.4%) 79 (21.5%) 8 (2.2%) 9 (2.4%)
Monthly income	None <Rs.10,000 Rs.10,001-Rs.50,000 >Rs.50,001	196 (53.1%) 55 (14.9%) 107 (29.0%) 11 (3.0%)
Type of lung disease	COPD Bronchial Asthma Asthma COPD overlap syndrome Interstitial lung disease Bronchiectasis More than one	44 (9.8%) 272 (60.3%) 20 (4.4%) 18 (4.0%) 68 (15.1%) 17 (3.8%)
Comorbidities	Diabetes mellitus Hypertension Ischaemic heart disease Epilepsy More than one above None	22 (6.4%) 61 (17.7%) 8 (2.3%) 1 (0.3%) 59 (17.2%) 192 (55.8%)
Alcohol use	Never Occasional Regular Ex-consumer	265 (73%) 54 (14.9%) 2 (0.6%) 42 (11.6%)
Tobacco use	Never Occasional Regular Ex-consumer	286 (79.2%) 8 (2.2%) 7 (1.9%) 59 (16.3%)

Table 2. Distribution of HADS scores for anxiety and depression against the type of lung disease

	HADS A score			HADS D score		
	No or doubtful	Definite anxiety	Total	No or doubtful	Definite depression	Total
COPD	37 (84.1%)	7 (15.9%)	44 (100%)	35 (79.5%)	9 (20.5%)	44 (100%)
Asthma	234 (86%)	38 (14%)	272 (100%)	238 (87.5%)	34 (12.5%)	272 (100%)
ACOS	16 (80%)	4 (20%)	20 (100%)	18 (90%)	2 (10%)	20 (100%)
ILD	13 (72.2%)	5 (27.8%)	18 (100%)	15 (83.3%)	3 (16.7%)	18 (100%)
Bronchiectasis	58 (85.3%)	10 (14.7%)	68 (100%)	55 (80.9%)	13 (19.1%)	68 (100%)
More than one lung disease	15 (88.2%)	2 (11.8%)	17 (100%)	14 (82.4%)	3 (17.6%)	17 (100%)
Total	373 (85%)	66 (15%)	439 (100%)	375 (85.4%)	64 (14.6%)	439 (100%)

Table 3. Associations between HADS score level and different variables of responders

		HADS A score			HADS D score		
		No or doubtful	Definite anxiety	P value	No or doubtful	Definite depression	P value
Age group	<50 years	95 (80.5%)	23 (19.5%)	0.166	107 (90.7%)	11 (9.3%)	0.06
	> 50 years	286 (85.9%)	47 (14.1%)		279 (83.8%)	54 (16.2%)	
Gender	Male	148 (83.6%)	29 (16.4%)	0.684	155 (87.6%)	22 (12.4%)	0.335
	Female	233 (85.0%)	41 (15%)		231 (84.3%)	43 (15.7%)	
Marital status	Married with partner	294 (87.2%)	43 (12.8%)	0.005	290 (86.1%)	7 (13.9%)	0.628
	No partner	87 (76.3%)	27 (23.7%)		96 (84.2%)	18 (15.8%)	
Monthly income	Having	177 (90.3%)	19 (9.7%)	0.003	167 (85.2%)	29 (14.8%)	0.839
	Not having	204 (80.0%)	51 (20.0%)		219 (85.9%)	36 (14.1%)	
Tobacco use	Yes	135 (81.8%)	30 (18.2%)	0.236	143 (86.7%)	22 (13.3%)	0.620
	No	246 (86%)	40 (14%)		243 (85%)	43 (15%)	
Alcohol use	Yes	151 (81.2%)	35 (18.8%)	0.105	162 (87.1%)	24 (12.9%)	0.445
	No	230 (86.8%)	35 (13.2%)		224 (84.5%)	41 (15.5%)	
Type of lung disease	Only Asthma	234 (86.0%)	38 (14.0%)	0.262	238 (87.5%)	34 (12.5%)	0.154
	Any other	147 (82.1%)	32 (17.9%)		148 (82.7%)	31 (17.3%)	
Comorbid medical illnesses	Present	212 (81.9%)	47 (18.1%)	0.074	219 (84.6%)	40 (15.4%)	0.469
	Absent	169 (88.0%)	23 (12.0%)		167 (87%)	25 (13%)	

Discussion

Our findings demonstrate that nearly one fifth of patients attending the respiratory outpatient clinic screened positive for either an anxiety or depressive disorder, which is much higher than reported rates for these disorders in the general population of Sri Lanka (15, 16). The prevalence of depression in our study population was similar to the prevalence of depression reported among patients attending an outpatient department of a tertiary care hospital, Colombo (17). In comparison to our study, the prevalence of anxiety (17.6%) was similar and depression (8.5%) was lower in a previous study of clinic follow up patients with tuberculosis, conducted at the same hospital using the same rating scale (18).

However, the reported rates of depression in other chronic medical conditions in Sri Lanka, such as in Parkinsons disease (61.3%) and chronic kidney disease (27.9%), is much higher than the rates of depression elicited in our study (19, 20). Similarly, higher rates of depression (59%) and anxiety (23%) have been reported among asthmatic individuals in Tehran, Iran (8). A study done among patients with COPD in Nepal too revealed a higher prevalence of depression (21). The lower level of depression detected in our study may be due to non-inclusion of doubtful cases. If these 'doubtful cases' had been evaluated further using gold standard clinical assessments, the prevalence of anxiety and depression in our study may have been higher.

Previous studies have reported that increased rates of anxiety and depression in chronic lung disease (CLD) are associated with female gender, lack of support and having more severe respiratory diseases (22). Although there was no association between anxiety or depression and female gender in this study, not having a partner was associated with increased anxiety.

Pooler et al., reported that managing depression and anxiety starts with an accurate diagnosis (23). To improve the patient's condition, identification of those who have more permanent and sustained anxiety and depression is necessary, along with development of screening methods and implementation of effective management strategies to alleviate the impact of co-morbidities (23). Educating the chest physicians and primary care doctors about psychiatric comorbidity and being vigilant in routine management of lung disease, will improve the detection of mental illnesses among patients with CLD. Development of a routine screening strategy for patients with CLD will help accelerate recovery from lung disease and will prevent complications, leading to improvement of the quality of patient lives. Studies have demonstrated the efficacy of antidepressants in treating asthma-related symptoms, not only in depressed individuals with asthma but in non-depressed patients too; therefore, detection of psychiatric disorders and prompt treatment may alleviate both psychological and physical symptoms (9).

Maurer et al., has described multilayered barriers for adequate management of mental health issues in patients with CLD, ranging from patient related barriers such as poor mental health literacy and stigma, to physician related barriers such as lack of time and confidence in detection of mental illnesses, and systemic barriers such as poor referral pathways and lack of resources in mental health (24). They have suggested an integrated treatment approach to address these issues, which is equally applicable to our setting as well (24).

Limitations

The fact that severity of participant lung disease could not be assessed, is a major limitation. Further, our study population may not be representative of Sri Lankan patients with CLD, as we recruited patients attending monthly follow up who generally have a better treatment adherence. An inherent limitation of evaluating depressive and anxiety symptoms in medically ill cohorts is the possibility of inflated scores on depression and anxiety scales due to the physical symptoms of the illness (9). For example, symptoms of both COPD and asthma can cause fatigability, poor appetite and disturbed sleep, which may increase scores of some tools that measure depression and anxiety. However, the HADS makes allowance for this, which suggests that the medical symptoms alone do not fully explain the increased observed rates of depression and anxiety.

Conclusions

In this study anxiety and depression were significantly high in patients with CLD in comparison to the general population. Assessment and management of anxiety and depression are important, as these common comorbidities can negatively impact on treatment compliance, increasing the difficulty of controlling the lung disease, and thus lead to increased morbidity and mortality. Future studies should focus on evaluating the effectiveness of multimodal treatment approaches for the management of anxiety and depression in patients with chronic lung disease.

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Declaration of interest

Conflicts of interest - none

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