Prevalence and associated factors of anxiety and depression among patients with chronic respiratory diseases in eight general hospitals in Jiangsu Province of China: A cross-sectional study

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ABSTRACT

Anxiety and depression are two common psychological disorders with high morbidity worldwide. Understanding of their prevalence of patients with chronic respiratory diseases is becoming more and more important for clinicians. The current study aims at investigation of the prevalence and potential risk factors of anxiety and depression among patients with chronic respiratory diseases. The psychological status, anxiety and depression, and the relevant risk factors of 1713 patients with chronic respiratory diseases from 8 general hospitals in Jiangsu Province of China were evaluated. The results showed that the patients with chronic respiratory diseases experiencing depression and anxiety accounted for 46.00% and 25.34%, respectively. Multivariate logistic regression analysis revealed that lower body mass index (BMI), sleep disorders, limitation of physical activity, and negative life events were significantly associated with an increased risk of both depressive and anxiety symptoms. Poor marital status including divorce, separation and widowerhood was markedly correlated with an increased risk of depression, and chronic pain was with anxiety symptoms, respectively. Collectively, the data demonstrated that depression and anxiety were highly prevalent among the patients with chronic respiratory diseases. It is greatly significant to take specific psychological measures to lower the incidence of depression and anxiety in these patients.

1. Introduction

Anxiety and depression are two common psychological disorders associated with high morbidity and have become serious public health issues in China and worldwide. It has been predicted that depression will become the second leading cause of disability by 2020 (Murray and Lopez, 1997). A psychiatric epidemiological study in four provinces of China revealed that the adjusted one-month prevalence of any mental disorder was 17.5%; of mood disorders, 6.1%; and of anxiety disorders, 5.6% during 2001–2005 (Phillips et al., 2009).

Studies have documented an association between increased depression or anxiety disorders and chronic respiratory diseases including chronic obstructive pulmonary disease (COPD), asthma and lung cancer (Ohayon, 2014; Vieira et al., 2011; Haun et al., 2014). Also, a strong relationship between respiratory symptoms, such as wheezing, breathlessness and nightly symptoms, and psychological status including depression or anxiety was observed in a cross-sectional multicenter study (Leander et al., 2014). Thus, it is becoming more and more important for clinicians to know about the prevalence and risk factors for depression and anxiety in chronic respiratory diseases. Recently, some studies have found that the prevalence of depression and anxiety of patients hospitalized in respiratory medicine department in China was 61.48–69.70% and 30.30–52.14%, respectively (Zheng et al., 2003; Lai et al., 2013). However, due to the small sample size in the

studies, the reference value was limited. Therefore, it is critical to perform a larger sample survey among the patients with chronic respiratory diseases to investigate the prevalence of depression and anxiety.

Aiming at investigating the prevalence of depression and anxiety in patients with chronic respiratory diseases and assessing the relevant risk factors, we conducted the cross-sectional study on both out-patients and in-patients in 8 general hospitals in Jiangsu Province of China.

2. Methods

2.1. Study design

This multi-center, cross-sectional study was carried out in 8 general hospitals in Jiangsu Province. An ethical approval was obtained from the Medical Ethics Committee of the Jiangsu Province Hospital of Traditional Chinese Medicine (TCM) prior to commencement. All patients enrolled in the survey gave the informed consent.

2.2. Participants

Consecutive patients who attended the respiratory department of 8 general hospitals in Jiangsu Province from July to September in 2014 enrolled in the survey. Both out-patients and in-patients aged 18 years and older who were definitely diagnosed as chronic respiratory diseases and willing to cooperate with the questionnaire were included, those who could not complete the questionnaire independently due to mental disabilities or with acute respiratory diseases were excluded. The 8 hospitals were Jiangsu Province Hospital of TCM, Lianyungang First People's Hospital, Zhenjiang First People's Hospital, Nanjing First Hospital, Yancheng Hospital of TCM, Nantong Hospital of TCM, Taizhou Hospital of TCM and Jiangsu Province Second Hospital of TCM, respectively.

2.3. Measurement of anxiety and depression

The symptoms of depression and anxiety were assessed with the Hospital Anxiety and Depression Scale (HADS) that has been widely used in general hospitals (Snaith, 2003). The HADS questionnaire consists of two 7-item subscales, 7 evaluating severity of depression and 7 measuring anxiety. Each item's severity is rated from 0 (none) to 3 (severe). Cut-point scores for possible "cases" have been suggested at 8–10 (Snaith, 2003). In the current study, a cut-off of 8 or greater on either subscale was used to indicate possible pathology. Using this cut-off, HADS showed high sensitivity and specificity in Chinese patients (Xie, 2013).

2.4. Data collection

Participants' general demographic characteristics were collected, including age, gender, body mass index (BMI), occupation, annual income level, educational level, and marital status. The information was recorded on the disease characteristics including primary diseases, the disease duration, associated diseases, smoking or drinking history, main symptoms, sleep quality, chronic pain, previous diagnosis of depression and encountered unfortunate events in the past six months. All of the participants were requested to fill out a questionnaire to provide their information above.

All questionnaires were completed by participants independently. If the patients were illiterate or suffered from some serious diseases that prevented them from completing the questionnaire, the investigator explained the questions one by one to them, and kept a record of the patient's responses. The investigator did not influence the patient's responses.

2.5. Statistical analysis

Demographic data were expressed as frequency and percentage. Epi Data 3.0 was used for the data entry, and SPSS17.0 was applied for data analysis. The categorical variables were compared by chi-square tests. Univariate and multivariable logistic regression were used to identify patient characteristics associated with the symptoms of depression or/and anxiety. Risk factors considered in this analysis included age, sex, BMI, marital status, education level, occupation, annual income level, drinking, smoking, duration of the primary diseases, associated diseases, chronic pain, sleep disorders, use of sleep medications, negative life events in the past six months, being diagnosed as depression in the past. Variables were included in the multivariable logistic model if p-value < 0.05 in the univariate analysis. P-value < 0.05 was considered statistically significant.

3. Results

3.1. Demographic characteristics

A total of 1748 patients were asked to complete the questionnaire, of which 1713 including 1081 outpatients and 632 inpatients were returned giving a 98% response rate. 35 Patients were excluded due to unwillingness to cooperate with the questionnaires. All the responders completed the questionnaires. The median age of the patients was 61 years, ranging from 18 to 98. 728 participants (42.50%) were female, 286 patients (16.70%) had educational qualifications at junior college level or above. A small number of patients (8.87%) had no occupation. More demographic details are listed in Table 1. No differences were found in the prevalence of depressive and/or anxiety symptoms between male and female. Participants without depressive symptoms were more likely to be younger, to having higher educational level, more steady job and higher income level than those with such symptoms. There were no significant differences in prevalence of anxiety symptoms in different age groups and occupational status. Participants without anxiety symptoms were more likely to have higher educational level and higher income level than those with such symptoms.

3.2. Clinical characteristics of study subjects

As can be seen in Table 2, patients experiencing depressive and anxiety symptoms accounted for 46.00% and 25.34%, respectively. The patients included in the survey were previously diagnosed as COPD (31.76%), bronchial asthma (24.28%), chronic bronchitis (16.11%), lung cancer (8.52%), bronchiectasis (6.48%), interstitial lung disease (5.08%), chronic cor pulmonale (3.39%), sleep apnea (1.17%), chronic respiratory failure (0.99%) and others (2.22%). The main chronic respiratory diseases with higher prevalence of depressive symptoms were lung cancer, interstitial lung disease, chronic cor pulmonale, COPD and chronic respiratory failure, which accounted for 58.22%, 57.47%, 56.90%, 52.94% and 52.94%, respectively. The main chronic respiratory diseases with higher prevalence of anxiety symptoms were chronic respiratory failure, chronic cor pulmonale and interstitial lung disease, which accounted for 47.06%, 36.21% and 32.18%, respectively. The prevalence of depressive symptoms in patients with coronary heart disease or cerebrovascular disease was higher than those without these diseases ($p < 0.01$). Smoking, drinking and previous diagnosis of depression were not associated with depressive and/or anxiety symptoms.

Sleep disorders and negative life events significantly associated with depressive or anxiety symptoms. Chronic pain notably correlated with anxiety symptoms, but not with depressive symptoms. More clinical details are listed in Table 2.