

## Assessment of Factors Associated with Readmission of Patients with Chronic Obstructive Pulmonary Disease in Internal Department of Hospitals

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### ABSTRACT

Chronic obstructive pulmonary disease has affected a large number of people and it is anticipated that the disease, the sixth leading cause of death in the present, will be the third one by 2020. It was also the fourth leading cause of death until 2011 In Iran and Zanjab has also allocated a large number of admissions to itself. Readmission of these patients includes the high proportion of admissions, imposing high costs on both health care system and patients. This study aimed to assess factors associated with readmission of patients with obstructive pulmonary disease in internal department of hospitals in Zanjan. This study is a descriptive correlational survey carried out according to information obtained from 230 patients with chronic obstructive pulmonary disease in internal department of hospitals in Zanjan. A Researcher-made questionnaire including four parts was used to collect data. The questionnaire was analyzed by Spearman's and Pearson's correlation test, chi-square test and SPSS 16. The results of this study indicate that there is a significant relationship between readmission and disease severity with the number of cigarettes consumed per day, and education, co-existing diseases and lack of training during previous discharge. The findings of this research will help health system stakeholders to be much more successful in controlling the disease with the proper training to discharge patients, making some decisions to reduce smoking, control co-existing diseases and raise patients' awareness.

**Key words:** Reassessment, Associated factors, Chronic obstructive pulmonary disease.

### INTRODUCTION

Chronic obstructive pulmonary disease is the most common cause of disability and death resulted from pulmonary diseases, which is associated with chronic obstruction of airflow into or out of the lungs. This obstruction is a kind of diffuse obstruction in the airways, which increases resistance to airflow. Diseases such as chronic bronchitis, bronchiectasis and emphysema are included in chronic obstructive pulmonary diseases<sup>1</sup>. World Health Organization has defined

chronic obstructive pulmonary disease as a disease characterized by airflow limitation in airways and not fully reversible<sup>2</sup>. More than 16 million people are suffered by the disease in USA, where it is the fourth leading cause of death. Excessive secretion of mucus in the airways without regard to a specific cause (bronchitis or bronchiectasis), increase in the size of inferior airways in comparison with terminal bronchioles, destruction of alveolar walls and destruction of lung accumulation property after dilation and constriction of airways with varied intensity can be seen in patients with chronic

obstructive pulmonary disease, disturbing airway dynamics, narrowing them and removing their elasticity property<sup>3</sup>. In most cases, there is a combination of above cases in patient. The Symptoms begin in middle ages and increase with age. Although some functions of lungs, such as vital capacity and expiratory volume, decrease with age, the disease causes many of these changes to be intensified, airways to be blocked (as bronchitis) and lung elasticity to be impaired (as emphysema)<sup>4</sup>. According to information obtained from the Institute of Health Services of the Ministry of Health, 73,000 people have been diagnosed with chronic obstructive lung disease in Columbia with 4.3% of people over 45 years. Of course, based on a study to estimate the costs of chronic obstructive pulmonary disease among patients with mild to severe in Vancouver, Canada, the actual prevalence rate is about 8.4% of people over 40 years (5). Since one of the important goals in healthcare system is to reduce costs to patients and healthcare system, therefore to achieve the goals, patients must have a minimum length of stay and the number of admissions must be minimized. So, the researchers sought to conduct a survey in this field in order to provide effective remedies to reduce the number of these patients' hospitalization and study related factors. For this reason, they performed a study entitled "Assessment of Factors Associated with Readmission of Patients with Chronic Obstructive Pulmonary Disease in Internal Department of Hospitals in Zanjan".

#### METHODS

The study was conducted as correlational descriptive survey on 230 patients with chronic obstructive pulmonary disease in internal department of hospitals in Zanjan. Sampling was an available, objective - based sampling. Data was obtained through a researcher – made questionnaire. Test - retest method and content validity method were used to determine the reliability and validity of the questionnaire, respectively. In this case, the questionnaires were filled by ten patients with chronic obstructive pulmonary disease and then, questionnaires were reassessed with interval of two weeks and responses were determined using correlation

statistical test and then confirmed with correlation coefficient more than 0.89%.

#### RESULTS

The sample consisted of 143 (62.5%) males and 88 (38.5%) females. 8.5% of subjects were aged 30-49 years and 89.5% over 50 years, and their mean age was 65.7 years. 72.6% were married, 0.5% single, 0.9% divorced and 23.9% widowed. 67.8% were illiterate, 20.7% had primary education, 5.2% middle school education, 2.1% high school education, and the rest university education. 31.2% were house-keeper that is related to female research units, 6.4% laborer, 3% farmer, 2.6% employee, 9.4% unemployed, 24.4% retired, 12.4 self-employed and the rest had the other jobs. 48% of research units had disease severity class II, 31% class III and 18% class IV. The disease was diagnosed in patients aged 18-37 years in 3% of cases, 35-45 years in 14.5%, 46-55 years in 31.2%, 56-65 years in 26.9%, 66-75 years in 14.1%, and over 75 years in the rest of cases. 62.5% of patients had a history of smoking, and 37.5% did not. The mean duration of smoking was 25.4 years, 17.9% of subjects were smoking 5-1 cigarettes a day and the rest 11-15 cigarettes a day. 39.3% had been hospitalized twice and the rest more than three times. 12.8% were under medical treatment less than three years, 29.5% 4-6 years and the rest more than 10 years. The results show that there is a significant relationship between associated factors and readmission in patients with chronic obstructive pulmonary disease.

#### DISCUSSION

Chronic obstructive pulmonary disease includes chronic bronchitis and emphysema. Chronic bronchitis is expressed as difficulty in breathing due to persistent inflammation and thickening of airway. Risk factors for the disease are environmental and genetic factors, that both smoking and passive smoking are the cause of 80-90% of these patients. Other factors include occupational issues, environmental pollution and genetic disorders, such as alpha-antitrypsin deficiency which normally prevents the destruction of lung tissue by other enzymes<sup>6</sup>. Since taking care

of chronic obstructive pulmonary disease is one of the key aspects of the disease process and nursing, it is essential to address the disease due to its cost in this aspect. Therefore, educating patients and families can improve the quality of life and coping skills and reduce the risk of hospitalization in these patients<sup>7</sup>. And an approach based on self-management regarding the disease by professionals can significantly improve their health and reduce readmission or exacerbation by 40%. Readmission is more important today than ever before, because healthcare costs are rapidly raising and advances occurred in software and hardware technology have made it easier to examine and seek readmission and more information is available. Readmission rate is an important criterion in evaluating the quality of healthcare and is considered as a key measurement tool to examine the results of healthcare<sup>8</sup>. The results of a study conducted by Elikharz *et al.* (2011) in connection with data obtained from hospitalized patients with chronic obstructive pulmonary disease in 15 states of America are somewhat similar and compatible with the results of the present study<sup>9</sup>. MC Guan *et al.* (2007) conducted a study on qualified patients discharged from hospital after a period of chronic lung disease exacerbation in 2003-2007, that factors related to readmission are almost the same as the current study<sup>10</sup>. In another study done by Chan *et al.* in 2006-2007 in Hong Kong on patients with chronic obstructive pulmonary disease and

unplanned readmission showed that this study was similar to the aforementioned study and there is a significant relationship between unplanned readmissions and individual and lifestyle factors and nursing and healthcare services<sup>11</sup>. The findings of a correlational descriptive study by Bathaiea in 2008 entitled "assessment of relevant factors and readmission of patients with heart failure in hospitals of Shahid Beheshti University of Medical Sciences" are also consistent with the findings of our study<sup>12</sup>.

### CONCLUSION

Assessment and control of factors affecting patient readmissions, including clinical and functional status, medical care and medication, the desire to take medicine, lifestyle and personal factors, matter in different aspects, whether in reducing costs imposed on the health care system and patients, or increase in patients' quality of life and decrease in subsequent difficulties of frequent admissions. It also reduces the workload of nurses, who are involved in taking care of patients directly and at highest level. Some factors are not controlled, but others like knowledge of patients, control of co-existing diseases, control of risk factors such as not smoking and offering information needed and appropriate for patient status can be effective in readmission rate reduction.

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