

## ANXIETY LEVELS OF COPD SUFFERERS ARE STABLE IN INDONESIA

Yudi Akbar<sup>1\*</sup>, Mursal<sup>1</sup>, Rahmalia Amni<sup>2</sup>  
<sup>1</sup>STIKes Muhammadiyah Lhokseumawe, Indonesia  
<sup>2</sup>Faculty of Nursing, Universitas Syiah Kuala, Indonesia  
\*Email : nersyudi7gmail.com

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### Abstract

*Physiological changes due to inflammation in patients with Chronic Obstructive Pulmonary Disease (COPD) significantly reduce the level of carbon dioxide in the blood. This can trigger psychological changes in the form of depression and anxiety. This study aims to identify the level of anxiety in stable COPD patients. The study was conducted at the Pulmonary Polyclinic Unit of the University of North Sumatra Hospital, using a descriptive quantitative design, with 70 samples taken using a consecutive sampling technique. Data was collected using a STAI (State-Trait Anxiety Inventory) questionnaire. The majority of respondents were male (85.2%), aged >65 years (35.5%), had stopped smoking (97.5%) with a duration of smoking cessation >2 years (49.0%), and the majority of patients had COPD >2 years (60.0%). Most of the patients had moderate levels of anxiety (42.8%), as well as mild (30.0%) to severe (27.2%). Anxiety that is not treated immediately risks causing disturbances in various aspects of the patient's life. Therefore, COPD patients need to detect anxiety early and treat it quickly and appropriately, together with COPD medical treatment. Anxiety in chronic obstructive patients is a particular concern in nursing services so that it can be identified as soon as possible.*

**Keywords:** Anxiety, COPD, Stable

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### Introduction

Chronic Obstructive Pulmonary Disease (COPD) causes the third death in the world and will increase in the coming decades; its prevalence and estimated mortality associated with COPD is very significant and is one of the most common reasons for hospitalization (Dajczman et al., 2015). Chronic Obstructive Pulmonary Disease (COPD) is the third leading cause of death worldwide and is expected to continue to increase in the coming years. The prevalence and mortality of COPD have grown significantly, and it is a common cause of hospitalized patients with COPD (Dajczman et al., 2015).

Based on epidemiological studies, it is estimated that there were 384 million cases of COPD in 2010, with a prevalence of 11.7% globally; there are about 3 million deaths every year, and the majority of deaths from COPD is expected to continue to increase in the next few years to 4.5 million deaths annually (GOLD, 2018). The incidence of COPD in Indonesia, according to Basic Health Research (Kemenkes, 2013), states that the prevalence of COPD is 3.7 percent per mile, with a higher prevalence in men of 4.2% (Riskesdas, 2013). Medical Record Data at USU Hospital stated that the total number of COPD patients in 2019 was 786 people, dengan prevalensi lebih banyak terjadi pada laki-laki yaitu sebanyak 603 orang (88,6%).

Globally, epidemiological studies show 11.7% of COPD cases or about 384 million points in 2010, with a mortality rate of 3 million patients annually. The prevalence of deaths due to COPD is expected to continue to increase in the next few years to 4.5 million deaths annually (GOLD, 2018). The same is shown in Indonesia. Based on the results of Basic Health Research in 2013, it is stated that the prevalence of COPD in Indonesia is 3.7 percent per mile, with a higher prevalence in men, which is 4.2% (Ministry of Health, 2013). The same thing is also shown from medical record data at the University of North Sumatra Hospital (USU). The number of COPD patients in 2019 was 786, with the prevalence of most men at 88.6%, or 603 patients.

COPD is a disease caused by prolonged exposure to pulutan gas; the impact caused by chronic diseases causes physiological changes that will affect individuals throughout their lives (Smeltzer, S.C. & Bare, B.G. 2010). Chronic Obstructive Pulmonary Disease is a chronic pneumonia condition that causes airflow in the lungs to be disturbed. Prolonged exposure to pollutant gases is the cause of COPD. Copd sufferers experience physiological changes that adversely affect their lives (Smeltzer & Bare, 2010). Physiological changes due to inflammation associated with COPD cause the onset of depression and anxiety in patients, acute hyperventilation significantly lowers the level of carbon

dioxide in the blood, and lower levels of carbon dioxide reduce blood flow to the brain, which can trigger emotional symptoms including anxiety (Yohannes, Junkes, Smith, & Vestbo, 2017). COPD sufferers will experience unstable emotional disorders, low coping strategies, anxiety disorders, depression, and feelings of helplessness (Volpato, Banfi, Rogers, & Pagnini, 2015).

Physiological changes due to inflammation experienced by COPD patients cause depression and anxiety in patients. In addition, acute hyperventilation experienced by COPD patients significantly leads to a decrease in the level of carbon dioxide (CO<sub>2</sub>) in the blood. Low CO<sub>2</sub> in the blood results in decreased blood flow to the brain. This can trigger the onset of emotional disorders, including increased anxiety (Yohannes, Junkes, Smith, & Vestbo, 2017). In addition, the dynamic conditions that patients with COPD can experience are emotional instability, low coping strategies, feelings of helplessness, anxiety, to depression (Volpato, Banfi, Rogers, & Pagnini, 2015).

The anxiety felt by COPD patients is interpreted as a negative (erroneous) reaction or assessment of the threat to the condition of illness and treatment undergone by Clark & Beck (2010). The high level of anxiety experienced by the patient can aggravate his sick state. High pressure will also affect the decline in the patient's physical condition, especially severe exacerbation (Pumar et al., 2014).

The study conducted by Strang, Ekberg-Jansson, & Henoch. (2014) stated that most patients experienced anxiety related to COPD; the analysis of three things that popup patients worried about: death, anxiety about their survival, and loss of sense of joy. The majority of patients experience anxiety, limiting their lives to activities. Living with severe COPD creates feelings of helplessness and anxiety about dealing with life and all its challenges.

Living with severe COPD creates helplessness and anxiety about one's ability to live in the future and all the possible challenges. This has been proven in research conducted by Strang, Ekberg-Jansson, & Henoch (2014) that most patients who experience COPD also experience anxiety related to the disease. Death anxiety, anxiety about his survival, and loss of joy are all images of patients' experiences. The majority of COPD patients also limit their lives to activities.

Medical treatment over a long period can also cause a high level of anxiety experienced by COPD patients, resulting in non-compliance with treatment (Krauskopf et al., 2015). Non-compliance with treatment management will aggravate the condition of the disease suffered by the patient, and this aggravation will also lead to increased anxiety in the patient. In this case, the patient with stable COPD has undergone treatment and has felt how various symptoms appear; finally, the patient stabilizes. Thus, it is essential to know how the anxiety picture of COPD patients is stable so that various follow-ups can be recommended.

## Methods

This study used a descriptive quantitative method, with the study population of all chronic obstructive pulmonary disease (COPD) patients stable in the Pulmonary Clinic Poly. The number of samples in this study was 70 respondents taken using a non-probability sampling method with a consecutive sampling technique. Data collection using the State-Trait Anxiety Inventory (STAI) questionnaire developed by Charles D. Spielberger in 2010 consists of 2 parts: State Anxiety and Trait Anxiety. State Anxiety contains 20 statements that show how a person feels "right now" with four choices.

The level of anxiety on this instrument is classified into 3, namely mild, moderate, and severe anxiety. Data collection was carried out at the hospital pulmonary polyclinic; the sample criteria in this study were patients who were medically diagnosed with stable COPD, had suffered for more than two years, and did not have other disease complications. Meanwhile, respondents were instructed to rest for 5-10 minutes before taking the research data.

Data analysis using software where the researcher coded the data, while the statistical test obtained is in frequency.

## Result

The characteristics of respondents in this study mainly were aged 65 (35.5%), men (82.5%), self-employed (48.5%), and high school (44.5%). Most respondents have also quit smoking (97.5%), with the majority being six months to 1 year (42.5%) and >2 years (49%). Also, as many as 60% of patients have experienced COPD over the last two years. The characteristics of these respondents can be seen in table 1 below:

Table 1. Frequency Distribution of Characteristics of Stable COPD Patients

Characteristics	Frequency	Percentage
<b>Gender</b>		
Man	58	82.5
Woman	12	17.5
<b>Age</b>		
36-45 years	9	13,0
46-55 years	15	21.5
56-65 years	21	30,0
65 > years	25	35.5
<b>Profession</b>		
Civil Servant	6	8.5
TNI/POLRI	5	7.5
Self-employed	34	48.5
Farmer	6	8.5
Retired	12	17,0
Housewife	7	10,0
<b>Education</b>		
Elementary School	4	5.5
Middle School	17	24.5
High School	31	44.5
Colleges	18	25.5
<b>Smoking History</b>		
Has stopped	68	97.5
Still smoking	2	2.5
<b>Long time quit smoking.</b>		
6 Months – 1 Year	30	42.5
1-2 Years	6	8.5
>2 Years	34	49,0
<b>Long time with COPD</b>		
< 6 Months	1	1.5
6 Months – 1 Year	2	3,0
1-2 Years	25	35.5
>2 Years	42	60,0

Table 2. Frequency Distribution of Anxiety Levels in Stable COPD Patients

Anxiety Levels	Frequency	Percentage (%)
Mild (20-39)	21	30,0
Medium (40-59)	30	42.8
Moderat (60-80)	19	27.2
Sum	70	100

The frequency distribution of the anxiety level of stable COPD patients can be seen in table 2 above. The majority of respondents in this study had a moderate level of anxiety, namely 30 respondents (42.8%).

## Discussion

The research results have been conducted with the majority experiencing moderate anxiety levels in as many as 30 patients (42.8%). In comparison, others had mild anxiety levels in 21 patients (30.0%) and severe anxiety levels in 19 patients (27.2%).

COPD patients will tend to accept their disease conditions to minimize efforts and efforts to manage their disease. Based on the biopsychosocial impact of COPD, patients can work on medication to reduce dyspnea, and physical activity restrictions occur as a result of excessive worry about shortness of breath and fatigue that will be experienced as part of COPD disease (Kaşıkçı, 2011).

Physiological changes due to COPD cause structural changes in the airway, namely atrophy; airway obstruction in COPD is irreversible and occurs due to structural changes; COPD disease affects individuals throughout their lives (Smeltzer, S.C. & Bare, B.G. 2010). COPD is a lifelong disease that can affect all aspects of life, including work-related activities, sexual relationships, social relationships, decreased quality of life, and emotional disorders such as depression and anxiety (Jones, 2008).

Anxiety is an individual response to the stressor he experiences and is included in psychosocial problems; if a person experiences anxiety for a long time, it can decrease the patient's health status. Causes of anxiety in COPD patients include severe symptoms and limitations in daily activities, shortness of breath, risk of inpatient treatment, and burnout in medicine (Willgoss, T.G & Yohannes, A.M 2013).

Schane's (2008) study, where research was conducted to determine the prevalence of anxiety and depression in COPD patients, found that anxiety symptoms were more common in COPD patients than in other chronic diseases. Risk factors for anxiety and depression were difficulty walking (53.7%) and shortness of breath (51.3%).

Meanwhile, in the condition of shortness of breath, there is an increase in respiratory effort and an increase in the need for energy which will cause fatigue. Prolonged anxiety without treatment can create an imbalance of serotonin, an essential chemical in the human brain responsible for making a person happy and social (Rokade, 2011).

COPD patients with psychological anxiety disorders have a higher risk of suicide, the threat of physical disability, and chronic depressive symptoms than those without psychological disorders. Anxiety can cause more significant dyspnea. Therefore, COPD patients must intervene early to detect psychological anxiety disorders (Yohannes, Kaplan, & Hanania, 2018).

The clinical study by Khmour MR et al. (2010) showed that anxiety and depression lead to low adherence to COPD interventions, including pulmonary rehabilitation. Non-adherence to COPD therapy is associated with poor clinical outcomes, higher hospitalization rates, increased emergency department visits, and increased costs. Patients with COPD should be detected early, assessed for anxiety levels, and treated effectively; care practitioners are well placed to diagnose psychological disorders so that the condition is managed appropriately along with COPD treatment.

The results of research conducted from May to June 2019 showed that the anxiety level of stable COPD patients at the University of North Sumatra Hospital varied, with the majority experiencing moderate anxiety levels, as many as 30 patients (42.8%), while others had mild anxiety levels of 21 patients (30.0%) and the weight of 19 patients (27.2%).

COPD patients experience physiological changes due to structural changes in the airway (atrophy). In addition, airway obstruction in COPD patients is irreversible, affecting the individual throughout his life (Smeltzer & Bare, 2010). COPD is a chronic (lifelong) disease that affects all aspects of a patient's life, including work, sexual relations, social relationships, decreased quality of life, emotional disturbances, depression, and increased anxiety (Jones, 2008).

Anxiety is an individual's response to the stressor he experiences. Anxiety is part of psychosocial problems—long-term anxiety results in decreased health status (Willgoss & Yohannes, 2013). Anxiety experienced by COPD patients can be caused by the severity of the symptoms of the disease experienced, limitations in carrying out daily activities, shortness of breath shared, the risk of having to undergo inpatient treatment, and boredom in undergoing treatment.

COPD patients experience anxiety more often than patients with other chronic diseases. This can be due to various risk factors, mainly because patients with COPD have difficulty walking and experience shortness of breath or dyspnea (Schane, 2008). The same thing also appears in the current study at the University of North Sumatra Hospital, that most COPD patients in stable condition still experience moderate to severe anxiety (70.0%).

COPD patients with dyspnea experience an increase in respiratory effort, and this causes an increase in the need for energy, resulting in fatigue (Rokade, 2011). Moreover, in an anxious condition, the patient will experience a decreased ability to manage medication to reduce dyspnea due to the biopsychosocial problems he experiences (Kasikci, 2011).

Prolonged anxiety without treatment can also create a serotonin imbalance. These chemicals are essential substances in the human brain responsible for regulating emotions, especially making feelings of happiness (Rokade, 2011). In addition, COPD patients with psychological disorders (anxiety) are at higher risk of suicide and physical disability and display symptoms of chronic depression compared to patients who do not experience fear or psychological conditions. As

previously explained, the anxiety that occurs in COPD patients will worsen the dyspnea they experience. So, it is essential to carry out preventive interventions or treatment of psychological disorders (stress) early on (Yohannes, Kaplan, & Hanania, 2018).

Other clinical studies have also shown that anxiety and depression experienced by COPD patients lead to low adherence to treatment interventions, including pulmonary rehabilitation. Non-adherence to COPD therapy is closely related to poor clinical outcomes, higher hospitalization rates, increased visits to the emergency department, and advanced treatment costs (Khdour, 2010).

The strategy used to overcome the anxiety that is being faced is called the coping mechanism. Coping mechanisms commonly used by chronic disease sufferers are to increase worship, talk to other people, friends, and family about their problems, and divert stressors by hobbies they like. Some people have different coping mechanisms, such as denying, isolating, crying, screaming, daydreaming, hitting, squeezing, and scolding. There are even patients who are indifferent to their condition (Marfuzah, Z., Akbar, Y., Mursal, M., Mariyati, M., & Wahyuni, L. 2021)

Anxiety experienced by respiratory disorders causes various adverse effects on the patient's condition: both short-term (acute) and long-term effects of hemodynamic instability (Akbar, Y. 2019). Anxiety in acute conditions will have a fatal impact on patients, such as worsening the situation, increasing morbidity and mortality, and stress causes disturbances in various aspects of the patient's life. Disorders occur in the physical, psychological, emotional, social, and spiritual aspects. The diseases that occur are interrelated and affect each other.

Based on this description, nursing practitioners need to detect anxiety levels early in the early stages of patients suffering from Chronic Obstructive Pulmonary Disease (COPD) so that prompt and appropriate treatment can also be carried out from the beginning with COPD treatment.

## Conclusion

Based on the results of research that have been carried out regarding the level of anxiety in Stable COPD patients at the Lung Clinic, 30 respondents (42.8%). The impact of stress in the long term can affect the patient's quality of life, social interaction relationships, and COPD complications to exacerbations.

Based on the results of research conducted on stable COPD patients at the Lung Clinic, it can be concluded that most patients experienced moderate anxiety levels (42.8%). Long-term stress is feared to affect the patient's quality of life, and social interactions and COPD complications exacerbate. It is also essential for health workers to pay attention to patient characteristics in providing interventions for managing anxiety in COPD patients.

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