# Changes in confidence among patients with chronic obstructive pulmonary disease after health education at Quang Ninh provincial general Hospital in 2023

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## ABSTRACT

*Objectives: To assess changes in confidence among patients with chronic obstructive pulmonary disease (COPD) after health education at Quang Ninh General Hospital 2023. Methods and Paticipants: The outpatients with COPD at Quang Ninh General Hospital meet the inclusion criteria. Results: The status of confidence reached 2.24±0.3 points, 8.97% of the participants felt confident, the rest were not confident. After the health education intervention, the confidence rate increased from 8.97% to 75.21% after 4 weeks and to 85.9% after 12 weeks. Conclusion: It is necessary to conduct health education for patients on effective breathing exercises; Stop exposure to risk factors; Quit smoking and tobacco; Get vaccination against respiratory infections; Pulmonary rehabilitation to improve the confidence of outpatient patients with COPD.*

*Keywords: Confidence, Coping Self-Efficacy Scale, chronic obstructive pulmonary disease (COPD).*

## INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is a major public health problem and one of the most common chronic diseases. COPD caused 4.7 million deaths in 2020 [1] and it currently ranks 3rd among the top 10 causes of death worldwide [2]. It is estimated that the proportion of COPD is 12 % worldwide, and this proportion increased by 44% from 1990 to 2015 mainly due to aging [3].

In recent years, awareness of the impact of COPD on patients' self-confidence has led to an exponential increase in related research. These studies have evaluated what factors affect patients' self-confidence [4,5,6]. Health education facilitates and provides basic knowledge and skills for patients to improve their self-confidence. Many patients with COPD have become lack of confidence in their ability to avoid shortness of breath when participating in certain activities, even though the physical demands of the activity may be minimal. When their self-confidence decreases, the patients can limit many activities of daily life in the community. Identifying the patient's confidence level will help develop specific interventions to increase their confidence in those situations [7]. Therefore, the confidence of COPD outpatients needs to be assessed.

At Quang Ninh Provincial General Hospital, there are over 60 respiratory disease examinations each month, of which

more than 33% are patients with COPD [8]. However, there are not many studies on COPD in Quang Ninh. In 2017, there was Bui Van Cuong's research on the change in self-care knowledge among COPD patients after health education but there has not been any research on the confidence among COPD patients at Quang Ninh General Hospital. To research how effective health education is on the confidence of patients with COPD, the study "Confidence of patients with chronic obstructive pulmonary disease after health education at Quang Ninh Provincial General Hospital in 2023" was conducted to assess the change in confidence among patients with chronic obstructive pulmonary disease after health education at Quang Ninh Provincial General Hospital.

## PARTICIPANTS AND METHODS

**Participants**: All outpatients with chronic obstructive pulmonary disease at Quang Ninh General Hospital meet the following criteria:

**Inclusion criteria:** Not in the acute stage of the disease. Patients aged 18 years or older, able to communicate. The patient does not suffer from mental illnesses or serious medical conditions.

**Exclusion criteria:** Patients have serious complications such as myocardial infarction, stroke, blind, physical decline. The patient do not agree to participate in the study.

**Location and research time:** The research was conducted at the Chronic Disease Unit - Quang Ninh Provincial General Hospital.

Data collection period was from April 25, 2023 to July 25, 2023.

**Research design:** Intervention study with pre- and post-examination.

**Sample size and sampling method:** all outpatients with COPD who have treatment records and have regular follow-up examinations at Quang Ninh General Hospital and meet the inclusion criteria. There were 78 patients participating in the study and no one dropped out during the study period.

**Measurement, methods, and research assessment:** Demographics: age, gender, occupation, address, qualification, time of COPD diagnosis.

\* Confidence assessment: Based on Chronic Obstructive Pulmonary Disease Self-Efficacy Scale (CSES) which includes 34 questions about patients' confidence in managing COPD. Based on the classification of authors Wigal et al, the CSES has 34 items divided into 5 domains: (i) negative influences (12 items), (ii) intense emotional stimulation (8 items), (iii) physical exertion (5items), (iv) weather/environment (6 items) and (v) behavioral risk factors (3 items) [7].

Analyzing data on patient's confidence uses the CSES questionnaire and a 5-point Likert scale with a distance value of 0.8. The meaning of the average value in the 5-interval Likert scale is calculated as follows:

**Table 1. Ranking the patient's confidence**

| Likert range | Description | Rate your confidence |
|---|---|---|
| 1.0 - 1.80 | Absolutely not confident | Not confident yet |
| 1.81 - 2.60 | Not really confident | |
| 2.61 - 3.40 | Some what confident | Confident |
| 3.41 - 4.20 | Confident | |
| 4.21 - 5.00 | Very confident | |

In this study, patients were classified as confident with an average confidence score of 2.61 or higher and the group was not confident with a score of 2.60 or less. (Results of average scores are rounded to 02 decimal places).

\* Intervention method: Communication intervention - health education for patients. Researchers provide direct, face-to-face consultation and guidance to each outpatient at the hospital's outpatient clinic.

\* Intervention program: The research team conducted health education directly for patients - Instructions and health education on basic knowledge about management and treatment of COPD in the stable phase: General treatment; Control risk factors; Quit smoking; Get vaccinated against respiratory infections; Restore respiratory function; According to the content of the document "Guidelines for diagnosis and treatment of chronic obstructive pulmonary disease (updated 2018)" issued by the Ministry of Health[10].

**Data analysis:** Collected data was processed and analyzed using SPSS 20.0 software, results were presented in tables and charts.

**Ethical issues:** The collected information is only for research purposes to improve the quality of treatment and care for patients. The study was approved by the Ethics Council in Biomedical Research of Nam Dinh University of Nursing.

## RESULTS

### Table 2. Demographic characteristics of participants

| | Female | | Male | | Living location | | Qualification | | | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | n | (%) | n | (%) | City | Rutal area | Illiteracy | Primary | Intermediate and college level | University level and higher | n | (%) |
| < 60 years old | 7 | 9.0 | 27 | 34.6 | 19 | 38 | 5 | 8 | 17 | 4 | 34 | 43.6 |
| ≥ 60 years old | 11 | 14.1 | 33 | 42.3 | 10 | 11 | 1 | 3 | 3 | 0 | 44 | 56.4 |
| Total | 18 | 23.1 | 60 | 76.9 | 29 | 49 | 6 | 11 | 20 | 4 | 78 | 100 |
| X ± SD = 64.97 ± 13.17; Min: 43; Max: 88 | | | | | | | | | | | | |

The majority of COPD patients were elderly (≥ 60 years old) at 56.4%. The proportion of COPD patients under 60 years old was 43.6%. The gender ratio of male patients in the study was more than 4 times higher than that of female patients with a male:female ratio of 1:4,33 respectively. In the group of patients aged 60 years and older, the proportion of male patients was 4 times higher than that of female patients.

According to research results, the majority of COPD patients lived in rural areas, accounting for a higher rate of 62.82% (49/78 patients). Only 29/78 patients lived in the

city (accounting for 37.18%). COPD patients with high school level were 23/78 patients that accounted for the highest prorpotion. Participants with intermediate or college degrees accounted for the second highest proportion with 20/78 patients. COPD patients who were illiterate were 6/78 patients. The proportion of COPD patients with primary school education was 11/78 patients. The proportion of COPD patients with bachelor degree or higher was 4/78 patients.

**Table 3. Confidence scores of participants (n = 78)**

| Group of factors | Factor I | | Factor II | | Factor III | | Factor IV | | Factor V | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Confidence** | n | (%) | n | (%) | n | (%) | n | (%) | n | (%) |
| Absolutely unconfident | 3 | 3.85 | 20 | 25.64 | 29 | 37,18 | 16 | 20.51 | 4 | 5.13 |
| Not really confident | 65 | 83.33 | 40 | 51.28 | 40 | 51.28 | 49 | 62.82 | 28 | 35.90 |
| Confident | 10 | 12.82 | 18 | 23.08 | 9 | 11.54 | 13 | 16.76 | 46 | 58.97 |
| Average score | 1.22 ± 0.71 | | 1.21 ± 1.07 | | 0.86 ± 0.8 | | 1.13 ± 0.93 | | 2.13 ± 1.07 | |

*Note: (i) Negative influences (12 items); (ii) Intense emotional stimulation (8 items);*

*(iii) Physical exertion (5 items); (iv) Weather/environment (6 items);*

*(v) Behavioral risk factors (3 items)*

Before the health education intervention, the factor V group (behavioral risk factors) had the highest average self-confidence score with 2.13 ± 1.07 points, of which 58.97 % of COPD patients responded that they were confident.5.13% of COPD patients were not absolutely confident and 35.90% of the participants were not really confident with this group of factors.

Factor group III (physical exertion) had the lowest average self-confidence score with 0.86 ± 0.8 points. Majority of COPD patients were not really confident with this group of factors (accounting for 51.28%) and 37.18% of participants were absolutely unconfident. Only 11.54% of COPD patients were confident with factor group III.

Factor group I: 3.85% of COPD patients were absolutely unconfident, 83.33% were not really confident and only 12.82% of COPD patients were confident. The average score of factor group I (negative influence) was 1.22 ± 0.71 points.

Factor group II: 25.64% of patients with COPD were absolutely unconfident, 51.28% were not really confident and only 23.08% of patients with COPD felt confident. The average score of factor group II (intense emotional arousal) was 1.21 ± 1.07 points.

Factor group IV: 20.51% of patients with COPD were absolutely unconfident, 62.82% were not really confident and only 16.76% felt confident. The average score of factor group IV (weather/environment) was 1.13 ± 0.93 points.
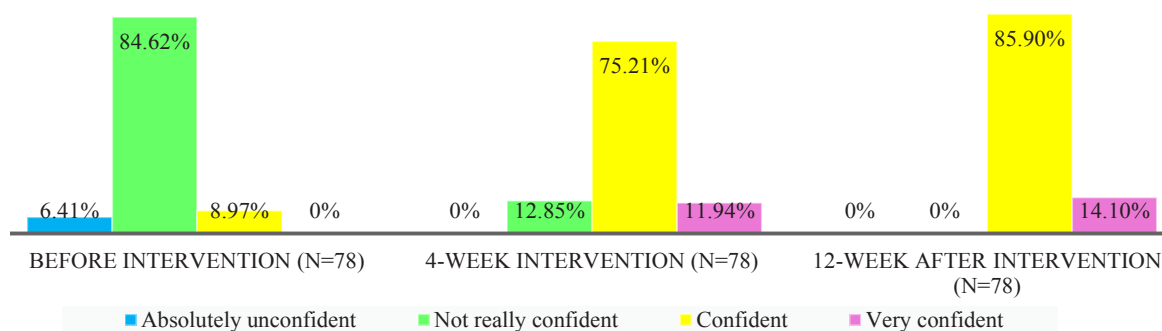
**Figure 3. Confidence of COPD patients before and after intervention (n = 78)**

4 weeks after intervention, the proportion of COPD patients who were absolutely unconfident decreased from 6.41% to 0%; not really confident decreased by 71.77% from 84.62% before health education to 12.85% after 4 weeks of intervention and to 0% after 12 weeks of intervention.

The confidence rate increased from 8.97% to 75.21% after 4 weeks and to 85.9% after 12 weeks. Before the intervention, there were not any participants who were very confident, but after 4 weeks and 12 weeks of intervention, 11.94% and 14.1% of COPD patients felt very confident respectively.

## DISCUSSION

**Participants:** Chronic obstructive pulmonary disease is a common disease among the elderly, the main risk factors are smoking and environmental pollution. The aging rate of our country's population is increasing very rapidly, industrialization contributes to economic development but also makes the environment more polluted, therefore, research on COPD is increasing interest. The studies reported that chronic obstructive pulmonary disease appears after the age of 40 years [9, 10]. The results of our study also have similar results with the average age of the 78 participants in the study which is 64.97 ± 13.17 years old; The youngest is 43 years old; The oldest is 88 years old. This average age result is lower than that in in author La Van Luan's study at Thai Nguyen Central Hospital in 2017 [11] which was 70.3 ± 7.7 years old. The participants in our study were also younger than those of Shu-Hui Yu's study at Beijing

hospital with the average age of 68.29 ± 7.09 years [12].

There were 18 female patients accounting for 23.1%, and male patients accounting for 76.9%. The rate of men with COPD is much higher than that of women. Similar to the research results of author Shu-Hui Yu and colleagues at Beijing hospital, 85.7% of COPD patients were men and 14.3% were women [11]. Similar to the study by author Nguyen Viet Nhung, research in the Vietnamese and Indonesian communities showed that among 1506 participants, the proportion of male patients diagnosed with chronic obstructive pulmonary disease was nearly 3 times higher than women with the disease (12.9%: 4.4%) [9].

The majority of our COPD patients live in rural areas with 62.82%, only 37.18% of patients live in cities. Research results are shown in figure 3.3. shows that the patients with high school level accounted

for the highest rate at 29.49%. Patients with intermediate degrees accounted for the second highest proportion with 17/78 patients (accounting for 21.79%). It is possible that participants with high school or intermediate education level used to work as mine workers, coal miners or worked at dusty construction sites. However, our research has not clarified this issue because there is no content to evaluate the patient's occupation in our measurement. This is one of the limitations of our study.

According to research results, the vast majority of COPD patients were diagnosed and treated for ≤ 10 years (rate of 66.67%), only 33.33% of COPD patients were diagnosed and treated > 10 years. The average duration of chronic obstructive pulmonary disease is 8.14 ± 6.74 years, at least 1 year and at most 30 years. Our research results are lower than the research results of Minmin Wu and his colleagues in China with the disease duration of COPD patients being 8.7 ± 11.3 years [5]. The time of diagnosis and treatment of the participants in our study was higher than that in Seema Aziyakath Shavro's study with an average duration of disease of 6.07 ± 6.06 years.

**Status of confidence before health education intervention:** According to the results of table 3, before the health education intervention, behavioral risk factors have the highest average confidence score with 2.13 ± 1.07 points, of which more than half ( 58.97%) of the participants answered that they were confident. The remaining 41.03% were not confident in risky situations. For our patients with COPD, when they exert themselves physically, they felt difficult to breathe, lack of air, and extreme fatigue. That is the main reason why the average confidence score in the physical exertion

factor group in our study is the lowest among the 5 factor groups of the CSES. 88.46% of participants were not confident (not really confident and absolutely unconfident) in situations requiring physical exertion. They did not know how to maintain breathing when doing strenuous activities such as playing sports, when walking quickly or in a hurry, or when carrying heavy objects. They were not equipped with the knowledge and skills to breathe properly. And in our health education intervention, we would guide the participants on these skill. According to Qi-Feng Yi et al., 2021, besides improving the knowledge and skills base of patients with chronic obstructive pulmonary disease to increase their confidence, they also need encouragement from their family member, need to eliminate negative emotions and establish an optimistic attitude. However, the health education intervention in our study only mentioned equipping effective breathing and coughing skills, and only focused on taking care of the main symptoms of chronic obstructive pulmonary disease [10]. Therefore, we recommend that there be research on confidence when providing psychological care for both patients and their families for more comprehensive research and health education interventions

**Change in participants' confidence after health education:** After receiving direct health education intervention from the research team according to the content in the document "Guidelines for diagnosis and treatment of chronic obstructive pulmonary disease (2018 updated version)" issued by the Ministry of Health [1], the patient's confidence scores have improved significantly. According to the research results in Figure 3 the proportion of participants who were absolutely unconfident decreased from 6.41% to 0%; not really confident decreased

by 71.77% from 84.62% before health education to 12.85% after 4 weeks of health education and to 0% after 12 weeks. The confidence rate increased from 8.97% to 75.21% after 4 weeks and to 85.9% after 12 weeks. Before the intervention, no one ranked themselves as very confident, there were 11.94% and 14.1% of the research participants felt very confident after 4 weeks and 12 weeks of intervention respectively. It may be seen that after 4 weeks of health education intervention, the participants' confidence changed significantly. The change is even more obvious after 12 weeks. The effectiveness of education program changed after 4 weeks, then,gradually increased as time passed to 12 weeks. This is not surprising, as confidence changes take time. This result is similar to the result of Shu-Hui Yu in Beijing, China [12]. Our results also demonstrate that people with chronic obstructive pulmonary disease receive health education on skills and knowledge in managing and treating stable chronic obstructive pulmonary disease and are encouraged to integrate them into everyday life and promote positive and beneficial development. Therefore, the effects of self-management of disease management and treatment are cumulative and positive results can be achieved through a process, which takes time.

Most of the participants in our study were elderly people with limited energy to perform more activities because of limited lung function or other chronic diseases. They reported that they were afraid of physical activities which caused shortness of breath, therefore they sometimes limited these activities. The research team conducted health education with the content as in the document "Guidelines for diagnosis and treatment of chronic obstructive pulmonary disease (2018 updated version)" issued by the Ministry of Health [1] and encouraged participants to implement ways to care for and manage that disease into their daily lives. This intervention made participants more confident that they could actually live better with COPD.

## CONCLUSION

Regarding the research participants' confidence before health education intervention, the average confidence score reached $2.24 \pm 0.3$ points. Only 8.97% of research participants felt confident. Among them, the factor group (III) Physical exertion has the lowest average score.

The health education intervention achieved its goal of improving participants' confidence. The average confidence score increased to $3.11 \pm 0.31$ points out of a total of 5 points after the 4-week intervention and $3.14 \pm 0.31$ points after the 12-week intervention. The confidence rate increased from 8.97% to 75.21% after 4 weeks and to 85.9% after 12 weeks. Before the intervention, no one ranked themselves as very confident, but after 4 weeks and 12 weeks of intervention, 11.94% and 14.1% of the research participants felt very confident respectively.

## REFERENCES

1. Ministry of Health. Guidelines for the diagnosis and treatment of chronic obstructive pulmonary disease (2018 updated version). Medical Publisher, Hanoi, pages 22, 23, 50. 2018.

2. La Van Luan, Nguyen Hoang Long, Le Thi Huong Lan. Quality of life among outpatients with chronic obstructive pulmonary disease treated as at Thai Nguyen central general hospital, Journal of Nursing Science, 2018, 1(4), 45-50.

3. Nguyen Tran To Tran, Le Thi Tuyet Lan. Quality of life among elderly patients with chronic obstructive pulmonary disease, Ho Chi Minh City Medical Journal, 2014, 18(1), 10 - 13.

4. Toni Kiljander, Timo Helin, et al. Prevalence of asthma-COPD overlap syndrome among primary care asthmatics with a smoking history: a cross-sectional study. Npj Primary Care Respiratory Medicine 2015; 25: 15047. doi: 10.1038/npjpcrm.2015.47.

5 Lin WY, Verma VK, Lee MY, Lin HC, Lai CS. Prediction of 30- Day Readmission for COPD Patients Using Accelerometer-Based Activity Monitoring. Sensors (Basel); 2019, 20(1):217. doi: 10.3390/s20010217

6. Gagné M, Lauzier S, Babineau-Therrien J, Hamel C, Penney SE, Bourbeau J, et al. COPD-Specific Self-Management Support Provided by Trained Educators in Everyday Practice is Associated with Improved Quality of Life, Health-Directed Behaviors, and Skill and Technique Acquisition: A Convergent Embedded Mixed-Methods Study. Patient; 2020, 13(1):103-119. doi: 10.1007/s40271-019-00386-7.

7. Perpiñá Tordera, M. LBA. Repercusión de la EPOC sobre el estado de salud, Arch. Bronconeumol. 2005, 3 (supl), 33–38. https://doi.org/10.1016/S0300-2896(05)70743-2.

8. M. Wu, Q. Zhao, Y. Chen, C. Fu, B. Xu. Quality of life and its association with direct medical costs for COPD in urban China, Health Qual. Life Outcomes, 2015, 13, 57, doi:http://dx.doi.org/10.1186/s12955-015-0241-5.

9. Nhung Nguyen Viet, Faisal Yunus, et al. The prevalence and patient characteristics of chronic obstructive pulmonary disease in non-smokers in Vietnam and Indonesia: An observational survey. Respirology, 2015; 20, 602-611. doi: 10.1111/resp.12507.

10. Qi-Feng Yi, Guo-Li Yang, Jin Yan. Self-Efficacy Intervention Programs in Patients with Chronic Obstructive Pulmonary Disease: Narrative Review,. International Journal of Chronic Obstructive Pulmonary Disease, Volume 16, 2021 – Issue.doi: 10.2147/COPD.S338720.

11. Shavro SA, Ezhilarasu P, Augustine, et al. Correlation of health-related quality of life with other disease severity indices in Indian chronic obstructive pulmonary disease patients. Int J Chron Obstruct Pulmon Dis, 2012, 7, p. 6-291. doi: 10.2147/COPD.S26405.

12. Yu SH, Guo AM, Zhang XJ. Effects of self-management education on quality of life of patients with chronic obstructive pulmonary disease. International Journal of Nursing Sciences, 2014;1(1):53-7. https://doi.org/10.1016/j.ijnss.2014.02.014.