

Lung Cancer

Lung cancer is caused by an error of DNA in cells of the lungs, which can develop into a tumor and destroy systems in the body. In many cases, lung cancer happens by smoking, because when the cell is damaged, it repairs itself, but if it keeps repairing again and again, then the cell has a chance to change to cancer. By the way, it's not only smoking that causes lung cancer. But yet, there are many signs of lung cancer that have been collected, so there is the data from Kaggle that provides information to predict the possibility of having lung cancer by using 15 conditions, which are gender, age, smoking, yellow fingers, anxiety, peer pressure, chronic disease, fatigue, allergy, wheezing, alcohol consumption, shortness of breath, coughing, swallowing difficulty, and chest pain.

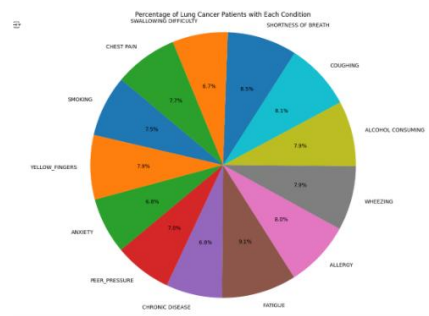


Figure 1: Percentage of lung cancer patients with each condition

From figure 1, it shows that 13 conditions have the similar significant percentage. This chart can be analyzed into 2 main topics, which are risky behaviors and symptoms of lung cancer. Risky behaviors consist of smoking and alcohol consuming. For symptoms, they have 12 different symptoms of lung cancer, with the majority of patients experiencing fatigue, accounting for 9.1% of the total lung cancer patients. On the other hand, the symptom that is least expressed compared to other symptoms is swallowing difficulty, accounting for 6.7% of the total lung cancer patients.

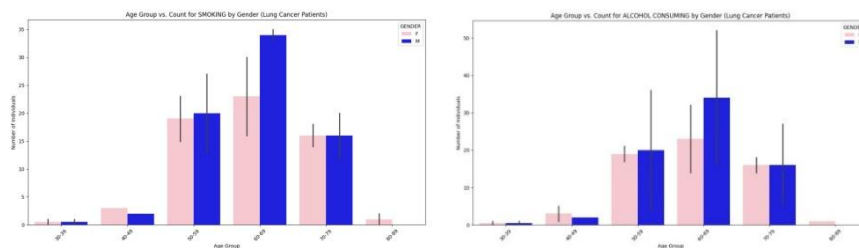


Figure 2: Age group vs Count of Smoking and alcohol consuming by Gender

From Figure 2, the graphs show the 60-69 age group stands out in both smoking and alcohol consuming conditions, especially the male gender. This can be assumed that lung cancer is caused by the accumulation of large amounts of harmful gases in the body over a long period of time. While alcohol

contributes to the weakening of the body's immune system, and it will increase the percentage of lung cancer. In addition, PM 2.5 smoke, a large amount of small dust, is a common air pollutant. It has the same effect as smoking, so it is predicted that if we continue our daily lives as before, the number of lung cancer patients in smoking condition will likely increase from this bar chart.

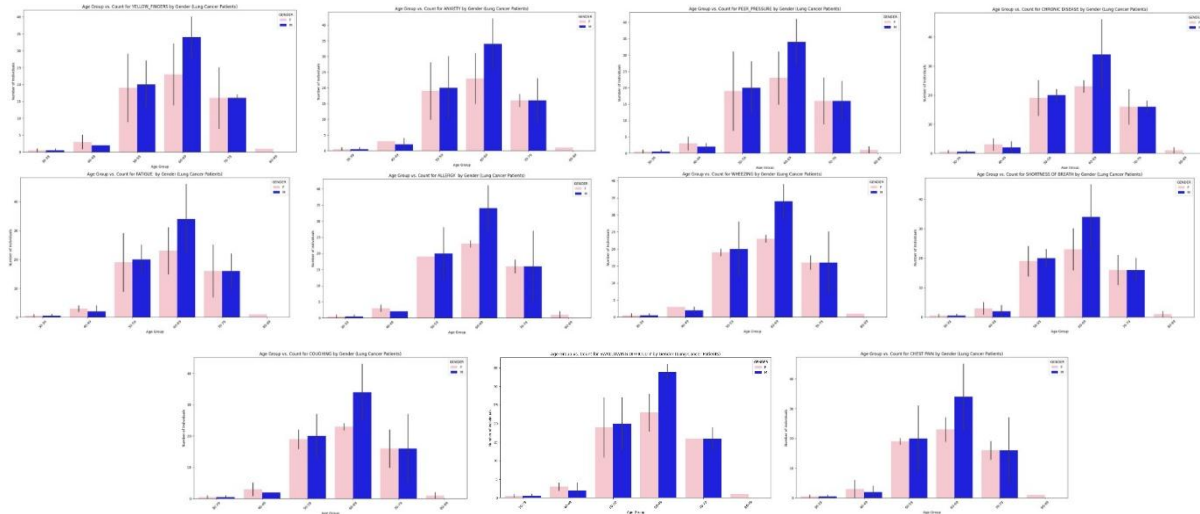


Figure 3: Age group vs Conditions by Gender (Lung cancer patients)

From Figure 3, symptoms of lung cancer include yellow fingers, anxiety, peer pressure, chronic disease, fatigue, allergy, wheezing, shortness of breath, coughing, swallowing difficulty, and chest pain. It is noticeable that in all conditions, the number of patients is highest in the age group 60-69. The causes may be due to smoking and deterioration of physical functioning following age. The results correspond to the American Cancer Society's survey, which found that lung cancer mainly occurs in older people and most people diagnosed with lung cancer are 65 or older.

To summarize, analysis of the graph with age, gender, and conditions found fatigue is a sign of people who have lung cancer mostly experienced the condition, which is likely caused by smoking, which also links it to another source. For the case apparently shows a male who is 60–69 years old has lung cancer, having the highest number of many conditions such as smoking.

Github link: <https://github.com/boonnada-ons/Lunh-Cancer-data-analysis.git>

References: Mayo Clinic. (2024, April 30). *Lung cancer: Symptoms and causes*. Mayo Clinic. Mayo Clinic

WebMD. (n.d.). *How alcohol affects lung cancer*. WebMD.

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