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Background

- The etiology of pulmonary disease is complex and influenced by various factors, resulting in a significant public health issue, with 16 million Americans living with chronic obstructive pulmonary disease (COPD) and 24 million with asthma, and cases on the rise.
- The purpose of this study was to explore the risk factors of pulmonary disease so patterns of risk can be understood and inform interventions.

Methods

- The cross-sectional study utilized the National Inpatient Sample Data from 2019 (NIS 2019). The study predictor variables consisted of: demographics (age (18+), sex, race); health status (obesity, depression, diabetes) and lifestyle behaviors (smoking, alcohol use, and aspirin use); and the study outcome was pulmonary disease.
- To ensure accuracy, the data was weighted by the variable discharge weight (DISCWT), and chi-square analyses and ANOVA tests were conducted to determine the independence of categorical and numerical predictor variables.
- Descriptive statistics were conducted for all variables, simple and multiple logistic regression analyses were performed to identify factors that contribute to the likelihood of having pulmonary disease.

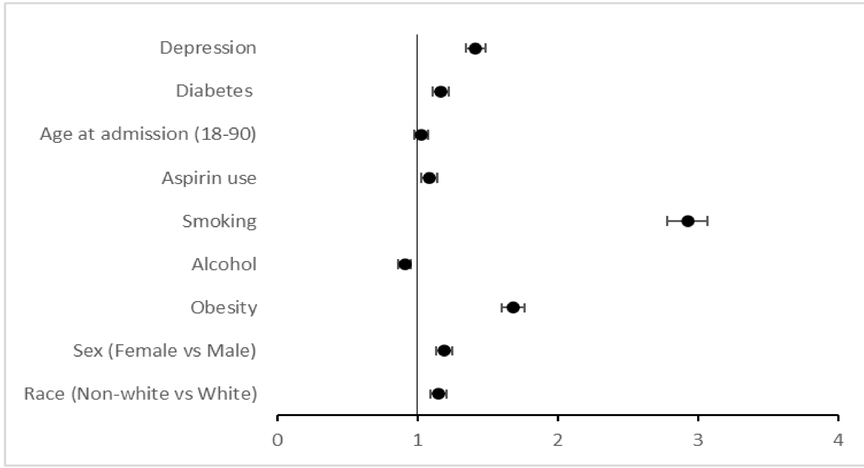
Results

- The sample of the NIS 2019 data included 6,043,654 cases of which, 22.65% of inpatients had pulmonary disease and 77.35% without pulmonary disease. The mean age of the sample population was 58.4 years.

Table 1. Frequency table of predictors of pulmonary disease

Predictor Variables	Pulmonary disease N= 1,369,121, 22.65%	No Pulmonary disease N= 4,674,533, 77.35%
Race	N (%)	N (%)
White	983,081 (16.65)	2,987,128 (50.60)
Non-white	358,795 (6.08)	1,574,747 (26.67)
Sex		
Female	780,087 (12.91)	2,667,159 (44.14)
Male	588,929 (9.75)	2,006,808 (33.21)
Obesity		
Yes	317,265 (5.25)	755,585 (12.50)
No	1,051,856 (17.40)	3,918,948 (64.84)
Aspirin use		
Yes	251,362 (4.16)	625,321 (10.35)
No	1,051,856 (17.40)	4,049,212 (67.00)
Depression		
Yes	256,945 (4.25)	603,400 (9.98)
No	1,112,176 (17.40)	4,071,133 (67.36)
Alcohol		
Yes	84,082 (1.39)	285,432 (4.72)
No	1,285,039 (21.26)	4,389,101 (72.62)
Smoking		
Yes	359,634 (5.95)	656,715 (10.87)
No	1,009,487 (16.70)	4,017,818 (66.48)
Phys. Inactivity		
Yes	67 (0.00)	210 (0.00)
No	1,369,054 (22.65)	4,674,323 (77.34)
Diabetes		
Yes	471,811 (7.81)	1,270,421 (21.02)
No	897,310 (14.85)	3,404,112 (56.33)

Figure 1. Logistic regression analyses of risk factors of pulmonary disease



Conclusions and Recommendations

- Results of our study provides important insights between pulmonary disease and associated risk patterns.
- As pulmonary symptoms have risen in the wake of the COVID-19 pandemic, there is an urgent public health need to explore disruption of risk pathways to avoid overwhelming fragile global healthcare systems.