

Lung capacity tests found to be accurate precursor of co-morbidities

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One of the largest studies to investigate whether Preserved Ratio Impaired Spirometry (PRISm), an understudied low lung function state,

is an early predictor of co-morbidities has found it is strongly associated with an increased risk of death. The analysis, led by University of Bristol researchers and published in *The Lancet Respiratory Medicine*, evaluated results of lung spirometry tests in over 350,000 UK adults and followed them up over 12 years.

Previous research has suggested that a particular pattern of low-scoring lung capacity tests known as a PRISm, calculated from forced expiration into a spirometer, is a precursor of chronic obstructive pulmonary disease (COPD). However, these findings are based on relatively small selective cohorts with short follow-up. Researchers from Bristol Medical School aimed to determine the prevalence, [risk factors](#), clinical implications, and mortality of low-scoring PRISm in a large adult [general population](#).

Using data from 351,874 UK Biobank participants, comprising 189,247 women and 162,627 men, the team found 38,639 (11 percent) of 351,874 participants were identified as having PRISm and this was strongly associated with obesity, smoking and patient reported doctor-diagnosed asthma. PRISm was strongly associated with symptoms and comorbidity including increased [risk](#) of breathlessness and [cardiovascular disease](#).

Longitudinal analysis showed that 241 (12.3 percent) of 1,973 participants who had PRISm at baseline transitioned to airflow obstruction consistent with COPD. The team found that PRISm was associated with increased all-cause mortality.

Dr. James Dodd, Consultant Senior Lecturer in Respiratory Medicine at Bristol Medical School: (THS) and North Bristol NHS Trust, said: "Our results found that PRISm was associated with breathlessness, multimorbidity, and increased risk of death, which does not seem to be explained by smoking, obesity, or existing lung disease."

Dr. Daniel Higbee, the study's first author from Bristol Medical School, added: "Our analysis is an example of the power of large population cohorts like UK Biobank in allowing us to more accurately describe the epidemiology and implications of abnormal lung function by accounting for sample size and selection bias."

Dr. Dodd continued: "Although for many patients PRISm is transient, it is important to understand which individuals are at risk of progressive [lung](#) function abnormalities. Further research into the genetic, structural and functional pathophysiology of PRISm is warranted."

More information: "Prevalence, risk factors, and clinical implications of preserved ratio impaired spirometry: a UK Biobank cohort analysis," *The Lancet Respiratory Medicine*, (2021).

Provided by University of Bristol

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