



RESEARCH ARTICLE

Received
20.09.2026Revised
10.10.2026Accepted
14.10.2026Published online
16.10.2026

CHARACTERISTICS AND ONE-YEAR EVOLUTION OF THE PRISm PHENOTYPE IN CONSTRUCTION WORKERS BASED ON SPIROMETRY

Thanh Dat Nguyen¹, Bao Han Doan², Anh Thu Huynh Dang^{3,*}¹Ho Chi Minh City Sports Medicine Association²Faculty of Medicine and Pharmacy, Tay Nguyen University³Department of Physiology - Pathophysiology - Immunology - Pharmacology, School of Medicine, University of Medicine and Pharmacy at Ho Chi Minh City

* Corresponding Author

Anh Thu Huynh Dang,
Department of Physiology -
Pathophysiology - Immunology
- Pharmacology, School of
Medicine, University of
Medicine and Pharmacy at
Ho Chi Minh City.
Corresponding Author
e-mail: thudanghuynhanh@ump.edu.vn



Copyrights: © 2026 Anh Thu Huynh Dang et al. This is an open-access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License ([CC BY-NC-SA 4.0](https://creativecommons.org/licenses/by-nc-sa/4.0/)), which permits non-commercial use, distribution, and reproduction, provided that appropriate credit is given to the original author(s) and source of the work.

ABSTRACT

Objectives: To determine the prevalence of preserved ratio impaired spirometry (PRISm), investigate associated factors, and evaluate changes in the PRISm phenotype after one year among construction workers. **Materials and Methods:** A retrospective descriptive-analytic study was conducted among 196 construction workers from two companies, Unicons and Cotecons, who underwent health examinations in two consecutive years, 2021–2022. PRISm was defined as $FEV_1 < 80\%$ of the predicted value and $FEV_1/FVC \geq$ the lower limit of normal (LLN). Data on age, sex, smoking status, and spirometry results were collected from electronic medical records. Statistical analyses were performed using SPSS version 20.0, with $p < 0.05$ considered statistically significant. **Results:** The mean age of the study participants was 35.0 ± 7.01 years; 85.2% were male and 42.3% were smokers. At baseline, 52/196 participants (26.5%) had at least one spirometric abnormality. PRISm was the most common phenotype, identified in 28 participants (14.2%). Among participants with PRISm, 24/28 (85.7%) also had spirometric findings suggestive of reduced lung volume. Age was significantly associated with PRISm ($p < 0.05$), whereas no statistically significant associations were observed with sex or smoking status ($p > 0.05$). After one year, the prevalence of PRISm increased to 17.3%. Of the 28 participants with PRISm at baseline, 22 (78.6%) remained in the PRISm phenotype, 4 (14.3%) returned to normal spirometry, and 2 (7.1%) transitioned to an obstructive pattern. Additionally, 12 new cases of PRISm were identified. **Conclusion:** PRISm is a relatively common spirometric phenotype among construction workers and demonstrates a dynamic pattern over time. Larger studies with longer follow-up are needed to clarify the role of occupational exposures in the development and progression of PRISm.

Key words: PRISm; spirometry; construction workers; pulmonary function.

Citation: Anh Thu Huynh Dang et al. Characteristics and one-year evolution of the PRISm phenotype in construction workers based on spirometry. *Vietnam Journal of Physiology*. 2026; 30(4):1-7. doi:10.54928/vjop.v30i4.671.

1. Introduction

Construction workers frequently work in environments with exposure to various occupational hazards affecting respiratory health, such as cement dust, silica, concrete dust, mineral dust, and welding fumes. Prolonged exposure causes damage to the airways and lung parenchyma, leading to a decline in lung function. Spirometric evaluation allows early detection of abnormal spirometric phenotypes, playing a crucial role in the prevention of occupational respiratory diseases. Preserved Ratio Impaired Spirometry (PRISm) is characterized by a reduced FEV₁ (<80% of predicted) with a preserved FEV₁/FVC ratio ($\geq$ LLN) [1]. The natural course of PRISm is highly variable, as it may normalize over time or progress to obstructive or restrictive ventilatory defects [2]. Recent studies have shown that PRISm is relatively common in the general population, with a pooled prevalence of approximately 10–12%, and is associated with cigarette smoking, older age, elevated body mass index (BMI), and cardiovascular-metabolic comorbidities [3]. In Vietnam, data regarding the characteristics and temporal changes of PRISm among construction workers remain limited. Therefore, determining the prevalence, associated factors, and longitudinal evolution of PRISm in this workforce is essential to identify early respiratory abnormalities and provide scientific evidence for occupational health preventive strategies. For these reasons, we conducted the study titled “Characteristics and one-year evolution of the PRISm phenotype in construction workers based on spirometry” with the following objectives:

- To determine the prevalence of the PRISm phenotype on spirometry among construction workers.
- To investigate the association between the PRISm phenotype and selected clinical and epidemiological characteristics in construction workers.
- To evaluate the one-year evolution of the PRISm phenotype among construction workers.

2. Materials and Methods

2.1. Materials

Construction workers from two construction companies, Unicons and Cotecons, underwent health examinations at University Medical Center Clinic 1 (UMC Clinic 1) in 2021 and 2022.

Inclusion criteria:

- Construction workers who underwent spirometry testing in two consecutive annual health examinations (2021 and 2022).
- Workers aged 18 years or older.
- Spirometry tests meeting the quality and acceptability criteria according to the ATS/ERS 2019 guidelines.

Exclusion criteria:

- Spirometry tests that failed to meet the ATS/ERS 2019 quality standards.

2.2. Methods

Study design: Retrospective descriptive analytical study.

Study period: From July 2024 to July 2026

Sampling technique and sample size

- Sampling technique: Total sampling method.
- Sample size calculation: The minimum sample size was calculated using the single proportion formula: $n \geq \left(\frac{Z_{1-\alpha/2} \sigma}{d} \right)^2$, $Z_{1-\alpha/2} = 1.96$ (corresponding to $\alpha = 0.05$ and a 95% confidence interval), expected margin of error ($d = 0.05$), expected prevalence of PRISm ($p = 0.12$) based on the study by Vinnikov et al. (2026) [4]. This yielded a minimum sample size of $n \geq 163$. Accounting for an estimated 10% loss to follow-up or missing data, the final minimum sample size required was 181 subjects.

Data collection: General characteristics and clinical data of the study participants were extracted from electronic medical records (EMRs). Spirometric data were collected from quality-controlled spirometry reports that met the ATS/ERS 2019 standards and had been interpreted and analyzed by respiratory specialists.

Study variables

- General characteristics: sex, age, cigarette smoking.
- PRISm phenotype: FEV₁/(F)VC $\geq$ LLN and FEV₁ < 80% of predicted.
- Obstructive ventilatory defect: FEV₁/(F)VC < LLN
- Suggestive restrictive ventilatory defect: (F)VC < LLN
- Mixed ventilatory defect: FEV₁/(F)VC < LLN and (F)VC < LLN
- Early small airway disease: FEF₂₅₋₇₅ < 60% of predicted.
- Reduced PEF: PEF < 80% of predicted.

- Large airway obstruction: Plateau formation during inspiration, expiration, or both on the flow-volume loop.
- Normal spirometry: Absence of any of the above ventilatory defects.

2.3. Statistic

Data were entered and analyzed using SPSS software (version 20.0; IBM Corp., Armonk, NY, USA). Categorical variables were presented as frequencies and percentages (n,%). Continuous variables were assessed for normality; normally distributed variables were expressed as mean $\pm$ standard deviation (SD), whereas non-normally distributed variables were reported as median and interquartile range (IQR). For bivariate analysis, the Chi-square test or Fisher's exact test was used to compare categorical variables across disease severity grades or outcome groups. For continuous variables, Student's two-sample t-test was applied for normally distributed data, and non-parametric tests (such as the Mann-Whitney U test or Kruskal-Wallis test) were used for non-normally distributed data. A p-value<0.05 was considered statistically significantly different.

2.4. Research Ethics

The study protocol was approved by the Institutional Review Board (IRB) / Ethics Committee in Biomedical Research of University of Medicine and Pharmacy at Ho Chi Minh City under Approval Decision No. 2191/DHYD-HĐĐĐ, dated August 29, 2024.

3. Results & Discussion

By retrospectively reviewing health examination records over two consecutive years (2021 and 2022), a total of 196 construction workers meeting the inclusion criteria were enrolled in the study.

3.1. Baseline characteristics of the study population

Table 1. Baseline characteristics of the study population (n=196)

Characteristic	n (%)
Age (years)*	35.0 $\pm$ 7.01
< 30	33 (16.8)
30 – 50	156 (79.6)
> 50	7 (3.6)
Sex	
Male	167 (85.2)
Female	29 (14.8)
Cigarette smoking	
Yes	83 (42.3)
No	113 (57.7)

* Note: Data are presented as frequency (percentage, %), except for Mean $\pm$ Standard Deviation (SD).

The study was conducted on 196 construction workers, with a mean age of 35.0 ± 7.01 years. The majority of participants belonged to the 30-50 age group (79.6%), indicating a relatively young workforce, which aligns with the physical demands and characteristics of the construction industry. Male workers accounted for a predominant proportion (85.2%), whereas female workers comprised only 14.8%. This gender distribution reflects the occupational nature of the construction sector, where direct job site labor typically exhibits a higher proportion of male workers. The prevalence of cigarette smoking was 42.3%, highlighting smoking as a noteworthy exposure risk factor. Cigarette smoking is a well-established risk factor associated with impaired lung function, including the PRISm phenotype.

3.2. Prevalence of the PRISm phenotype in construction workers

Table 2. Spirometric characteristics of construction workers (n=196)

Characteristics	n(%)
Normal	144 (73.5)
Abnormal	52 (26.5)
PRISm phenotype	28 (14.2)
Reduced PEF	26 (13.2)
Suggestive restrictive ventilatory defect	26 (13.2)
Early small airway disease	11 (5.6)
Obstructive ventilatory defect	1 (0.5)
Large airway obstruction	1 (0.5)

* Note: Data are presented as frequency (percentage, %). Multiple spirometric abnormalities may coexist in a single participant.

In this study, 52 out of 196 construction workers (26.5%) exhibited at least one spirometric abnormality. Notably, PRISm was the most common abnormal pattern, identified in 28 workers, accounting for 14.2%. This prevalence indicates that a substantial proportion of construction workers experience a reduction in FEV₁ without fulfilling the spirometric criteria for airway obstruction. In contrast, the classic obstructive pattern accounted for only 0.5%. This striking difference suggests that in construction workers, impaired lung function does not necessarily present initially as an obstructive phenotype.

The prevalence of PRISm in our study was 14.2%, which is higher than the pooled prevalence of 10% (95% CI: 8–12%) reported by Li et al. in a meta-analysis of 24 studies [3]. However, the prevalence of PRISm across individual studies varied widely, ranging from 4.5% to 20.3%, with an exceptionally high degree of heterogeneity ($I^2=99.9\%$). Differences in study population characteristics, risk factor profiles,

and spirometry measurement methodologies may explain the variability in PRISm prevalence observed across different studies.

The prevalence of obstructive ventilatory defect was only 0.5%, markedly lower than that of PRISm. This finding highlights that relying solely on the FEV₁/FVC obstructive criterion to identify respiratory abnormalities may miss a substantial cohort of workers with impaired lung function. These results align with the current consensus that PRISm represents a distinct spirometric phenotype, which is not synonymous with COPD, but possesses dynamic trajectories and variable longitudinal outcomes over time.

Table 3. Spirometric characteristics within the PRISm phenotype subgroup (n=28)

Spirometric characteristics of PRISm	n (%)
PRISm + Suggestive restrictive ventilatory defect	20 (71.4) 4 (14.3)
PRISm + Suggestive restrictive ventilatory defect + Reduced PEF	
PRISm + Early small airway disease	2 (7.1)
PRISm + Early small airway disease + Reduced PEF	2 (7.1)

* Note: Data are presented as frequency (percentage, %)

Among the 28 construction workers with the PRISm phenotype, PRISm combined with a suggestive restrictive ventilatory defect was the most prevalent subtype, accounting for 20 cases (71.4%). Overall, 24 out of 28 PRISm cases (85.7%) presented with concomitant suggestive restrictive ventilatory defects, whereas abnormalities related to small airway obstruction were identified in 4 out of 28 cases (14.3%). These findings indicate that the PRISm phenotype in this cohort of construction workers is predominantly accompanied by reduced lung volumes rather than isolated small airway impairment. This aligns with the underlying pathophysiology of PRISm, characterized by a reduced FEV₁ with a preserved FEV₁/FVC ratio, which frequently coexists with a reduced FVC or a restrictive pattern on spirometry.

Similarly, a large-scale meta-analysis by Wang et al. [5] involving over 1.19 million individuals reported a PRISm prevalence of approximately 11%, accompanied by significant reductions in both FVC and percentage of predicted FVC% (FVC% predicted) in the PRISm group. Our findings are consistent with these global data, demonstrating that impaired lung volume is a prominent physiological characteristic in a major subset of individuals with PRISm.

3.3. Association between the PRISm phenotype and clinical characteristics

Table 4. Association between the PRISm phenotype and clinical characteristics in construction workers (n=196)

Characteristics	PRISm n (%)	Non-PRISm, n (%)	p
Age (years)			
< 30	2 (7.1)	31 (18.5)	0.036*
30-50	23 (82.1)	133 (79.2)	
> 50	3 (10.7)	4 (2.4)	
Sex			
Male	23 (82.1)	144 (85.7)	0.837
Female	5 (17.9)	24 (14.3)	
Cigarette smoking			
Yes	12 (42.9)	71 (42.3)	1.0
No	16 (57.1)	97 (57.7)	

* Note: Fisher-Freeman-Halton exact test, $p < 0.05$

The distribution of PRISm across age groups in our study demonstrated a statistically significant difference ($p < 0.05$), indicating an association between age and the PRISm phenotype among the surveyed construction workers. Our findings align with the meta-analysis by Wang et al [5], involving 32 studies and nearly 1.2 million adults, which identified older age as a significant risk factor for PRISm; the mean age in the PRISm group was approximately 1.30 years higher than that in the non-PRISm group (MD = 1.30; 95% CI: 0.78-1.81; $p < 0.01$). However, heterogeneity across studies was exceptionally high, and the authors noted that age-related findings might be subject to potential confounding factors. Another population-based analysis by Choi et al [6] also demonstrated that the association between PRISm and age varies depending on the specific definitions of PRISm used and the underlying study populations.

Regarding sex, males comprised 23 cases (82.1%) and females accounted for 5 cases (17.9%) in the PRISm group, but this difference was not statistically significant ($p > 0.05$). The high proportion of males in the PRISm group reflects the overall gender composition of construction workers in our study rather than a true sex-specific susceptibility to PRISm. This result is consistent with current literature indicating that the association between sex and PRISm remains inconsistent across studies [5].

With respect to cigarette smoking, 12 individuals (42.9%) in the PRISm group were smokers compared to 16 non-smokers (57.1%); this difference was not statistically significant ($p > 0.05$). These findings do not demonstrate a significant association between cigarette smoking and PRISm in our study population.

A population-based study in Korea by Choi et al. [6] similarly found no statistically significant association between smoking status and PRISm after adjusting for confounding variables. Furthermore, a meta-analysis by Robertson et al. [1] confirmed that the association between smoking and PRISm is not fully consistent across different study populations.

3.4. One-year evolution of the PRISm phenotype in construction workers

Table 5. Spirometric characteristics after one year of follow-up (n=196)

Characteristics	n (%)
Normal	136 (69.4)
Abnormal	60 (30.6)
PRISm phenotype	34 (17.3)
Reduced PEF	35 (17.6)
Suggestive restrictive ventilatory defect	35 (17.6)
Early small airway disease	11 (5.6)
Obstructive ventilatory defect	3 (1.5)
Large airway obstruction	3 (1.5)
Mixed ventilatory defect	3 (1.5)

**Note: Data are presented as frequency (percentage, %). Multiple spirometric abnormalities may coexist in a single participant.*

After one year of follow-up, among the 196 construction workers, 136 (69.4%) exhibited normal spirometry, whereas 60 (30.6%) presented with at least one spirometric abnormality. Compared with baseline values, the overall prevalence of abnormal spirometry increased by 4.1% (from 26.5% to 30.6%), and the prevalence of the PRISm phenotype increased by 3.1% (from 14.2% to 17.3%). This dynamic shift indicates that the PRISm phenotype can evolve over time and does not represent a static state, which aligns with findings from previous longitudinal studies. In the COPDGene study [2], although the overall prevalence of PRISm remained relatively stable over a 5-year period, individuals with baseline PRISm experienced substantial transitions between phenotypes (22.2% normalized to normal spirometry, while 25.1% transitioned to an obstructive pattern).

At the 1-year follow-up, the prevalence of suggestive restrictive ventilatory defects increased to 17.6%, parallel to the prevalence of PRISm. This finding is consistent with the physiological hallmark of PRISm, in which FEV₁ is reduced while the FEV₁/FVC ratio remains preserved, frequently accompanied by a reduction in FVC.

The prevalence of early small airway obstruction (5.6%) and obstructive ventilatory defects (1.5%) suggests that a small subset of workers developed airflow limitation features after one year. However,

given the small number of confirmed obstructive cases, definitive conclusions regarding a trajectory toward an obstructive phenotype in this study population cannot be drawn. Long-term studies indicate that while PRISm may progress to airway obstruction in a subset of individuals, this is not an obligatory evolutionary path.

Table 6. Spirometric characteristics after one year of follow-up (n=34)

Spirometric characteristics of PRISm	n (%)
PRISm + Suggestive restrictive ventilatory defect	18 (52.9)
PRISm + Suggestive restrictive ventilatory defect + Reduced PEF	11 (32.4)
PRISm + Early small airway disease	2 (5.9)
PRISm + Early small airway disease + Reduced PEF	2 (5.9)
PRISm + Early small airway disease + Reduced PEF + Suggestive restrictive ventilatory defect	1 (2.9)

**Note: Data are presented as frequency (percentage, %).*

Among the 34 workers with PRISm after one year, PRISm combined with a suggestive restrictive ventilatory defect remained the most frequent presentation, accounting for 18 cases (52.9%). This observation is consistent with recent evidence demonstrating that PRISm is a heterogeneous phenotype, with lung volume reduction serving as a prominent feature in a significant subgroup. However, because this study utilized spirometry alone, restrictive patterns should be interpreted as "suggestive" of a restrictive ventilatory defect, requiring confirmation through total lung capacity (TLC) measurement when feasible.

Table 7. One-year longitudinal trajectory of the PRISm phenotype

Baseline characteristics and trajectory	n (%)
Baseline PRISm phenotype (n = 28)	
Persistent PRISm (Baseline PRISm → Persistent PRISm)	22 (78.6)
Normalized spirometry (Baseline PRISm → Normal)	4 (14.3)
Obstructive ventilatory defect (Baseline PRISm → Obstructive)	2 (7.1)
Baseline Non-PRISm phenotype (n = 168)	
Incident PRISm (Baseline Non-PRISm → PRISm)	12 (7.1)
Total PRISm cases at 1-year follow-up	34

**Note: Data are presented as frequency (percentage, %).*

In our study, among the 28 construction workers identified with baseline PRISm, 22 cases (78.6%) maintained the PRISm phenotype after one year of follow-up, 4 cases (14.3%) normalized to normal spirometry, and 2 cases (7.1%) transitioned to an obstructive ventilatory defect. Concurrently, 12 participants from the baseline non-PRISm group

developed incident PRISm after one year (7.1%), bringing the total number of PRISm cases at follow-up to 34. These observations demonstrate that PRISm among construction workers is a dynamic phenotype rather than a fixed condition, capable of persistence, reversal, or progression to airflow obstruction over time. In the COPDGene study by Wan et al. [2], which followed participants over approximately 5 years, 22.2% of individuals with baseline PRISm shifted to normal spirometry and 25.1% progressed to airway obstruction. Although the transition rates in our cohort were lower-likely attributable to the shorter follow-up period-both studies consistently show that PRISm exhibits multidirectional developmental trajectories rather than remaining static across all individuals.

The 14.3% reversal rate from PRISm to normal spirometry observed in the current study provides clear evidence that PRISm does not necessarily represent irreversible functional decline. A systematic review and meta-analysis by Li et al. [3] similarly highlighted the substantial heterogeneity of PRISm trajectories, reporting that approximately 10-50% of individuals revert to normal spirometry, 20–60% maintain persistent PRISm, and 6-53% progress to chronic obstructive pulmonary disease (COPD), depending on the target population and follow-up duration. Thus, our observed normalization rate of 14.3% falls within the range documented in the scientific literature.

Furthermore, the 12 incident cases of PRISm identified after one year illustrate that this phenotype can develop during follow-up. This result aligns with findings by Mraz et al. [7], who demonstrated that individuals transitioning from normal spirometry to PRISm experienced significant declines in lung function parameters, including FEV₁, FVC and total lung capacity (TLC). However, given our limited 1-year follow-up window and modest sample size, it remains unclear whether incident PRISm in these construction workers is directly driven by occupational exposures or reflects biological variability and measurement noise in spirometry.

4. Limitations

Our study has a few limitations that should be noted: the retrospective design, a relatively short one-year follow-up period, the absence of total lung capacity (TLC) measurements to confirm restrictive lung disease, and the lack of detailed workplace exposure data for dust and welding fumes.

5. Conclusion

PRISm is a notable spirometric phenotype among construction workers that exhibits a dynamic longitudinal trajectory over time. The frequent coexistence of features suggestive of lung volume reduction, alongside the potential for transitions between PRISm, normal spirometry, and obstructive patterns, underscores the necessity of conceptualizing PRISm as a dynamic entity rather than a static state of impaired lung function. Given the occupational nature of construction work, which involves routine exposure to airborne dust and respiratory hazards, identifying PRISm on spirometry carries significant clinical value for occupational health surveillance. Therefore, routine periodic spirometric screening should be strengthened for construction workers – particularly those with pre-existing functional lung abnormalities – combined with comprehensive assessments of occupational exposure and individual risk factors. Prospective studies with longer follow-up durations are warranted to establish the long-term clinical trajectories of PRISm and to clarify the impact of occupational exposures in this population.

Acknowledgement

We gratefully acknowledge the support of University of Medicine and Pharmacy at Ho Chi Minh City (UMP), University Medical Center Clinic 1 (UMC Clinic 1) and its dedicated staff for facilitating data collection and providing clinical infrastructure for this research project.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Declaration of Generative AI and AI-Assisted Technologies

During the preparation of this work, the authors used ChatGPT in order to improve language and readability with English translation. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

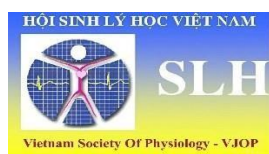
Author Contributions

Anh Thu Huynh Dang: conceptualization, methodology, study design, supervision, and critical revision of the manuscript. Dat Thanh Nguyen: data analysis, formal analysis, visualization, writing original draft preparation, and manuscript drafting.

Han Bao Doan: data curation, investigation, data collection, and formal analysis. All authors have read and agreed to the published version of the manuscript

References

1. Robertson NM, Centner CS, Tejwani V, et al. Preserved ratio impaired spirometry prevalence, risk factors, and outcomes: a systematic review and meta-analysis. *Chest*. 2025;167(6):1591-1614. doi:10.1016/j.chest.2024.12.025.
2. Wan ES, Fortis S, Regan EA, et al. Longitudinal phenotypes and mortality in preserved ratio impaired spirometry in the COPDGene study. *Am J Respir Crit Care Med*. 2018;198(11):1397-1405. doi:10.1164/rccm.201804-0663OC.
3. Li Y, Zhang P, Wang Y, et al. Prevalence of preserved ratio impaired spirometry: a systematic review and meta-analysis. *Pulmonology*. 2026;32(1):2637311. doi:10.1080/25310429.2026.2637311.
4. Vinnikov DV, Mukatova I, Urazalina Z, et al. Occupational associations of preserved ratio impaired spirometry (PRISm) in a population-based study. *Front Public Health*. 2026;14:1921126. doi:10.3389/fpubh.2026.1921126.
5. Wang H, Yang R, Liu D, et al. Prevalence, risk factors, lung function, and associated comorbidities of adult preserved ratio impaired spirometry: a meta-analysis. *MedComm*. 2025;6(6):e70235. doi:10.1002/mco2.70235.
6. Choi H, Oak CH, Jung MH, et al. Trend of prevalence and characteristics of preserved ratio impaired spirometry (PRISm): nationwide population-based survey between 2010 and 2019. *PLoS One*. 2024;19(7):e0307302. doi:10.1371/journal.pone.0307302.
7. Mraz TL, Lim CJM, Irvin CG, et al. Physiological characteristics and temporal transitions of preserved ratio impaired spirometry. *ERJ Open Res*. 2026;12(2):01129-2025. doi:10.1183/23120541.01129-2025.



ĐẶC ĐIỂM VÀ DIỄN BIẾN SAU MỘT NĂM KIỂU HÌNH PRISM Ở CÔNG NHÂN XÂY DỰNG QUA HÔ HẤP KÝ

Nguyễn Thành Đạt¹, Đoàn Bảo Hân², Đặng Huỳnh Anh Thư^{3,*}

¹Hội Y học Thể dục Thể thao Thành phố Hồ Chí Minh

²Khoa Y Dược, Trường Đại học Tây Nguyên

³Bộ môn Sinh lý-Sinh lý bệnh-Miễn dịch-Dược lý, Trường Y, Đại học Y Dược Thành Phố Hồ Chí Minh

TÓM TẮT

Mục tiêu: Xác định tỷ lệ kiểu hình hô hấp ký suy giảm với tỷ số FEV₁/FVC được bảo tồn (preserved ratio impaired spirometry – PRISm), khảo sát một số yếu tố liên quan và diễn biến kiểu hình PRISm sau 1 năm ở công nhân xây dựng. **Phương pháp:** Nghiên cứu hồi cứu mô tả phân tích trên 196 công nhân xây dựng của hai công ty Unicons và Coteccons, được khám sức khỏe trong hai năm liên tiếp 2021–2022. PRISm được xác định khi FEV₁ < 80% giá trị dự đoán và FEV₁/FVC ≥ LLN. Các thông tin về tuổi, giới tính, hút thuốc lá và kết quả hô hấp ký được thu thập từ hồ sơ bệnh án điện tử. Phân tích số liệu bằng SPSS 20.0, với p<0,05 được xem là có ý nghĩa thống kê. **Kết quả:** Tuổi trung bình của đối tượng nghiên cứu là 35,0 ± 7,01 tuổi; nam giới chiếm 85,2% và hút thuốc lá chiếm 42,3%. Tại thời điểm ban đầu, 52/196 (26,5%) đối tượng có ít nhất một bất thường hô hấp ký; PRISm là kiểu hình thường gặp nhất, với 28 trường hợp (14,2%). Trong nhóm PRISm, 24/28 (85,7%) có đồng thời biểu hiện giảm thể tích phổi trên hô hấp ký. Tuổi có liên quan với PRISm (p<0,05), trong khi giới tính và hút thuốc lá chưa ghi nhận mối liên quan có ý nghĩa thống kê (p>0,05). Sau 1 năm, tỷ lệ PRISm tăng lên 17,3%. Trong 28 trường hợp PRISm ban đầu, 22 (78,6%) duy trì PRISm, 4 (14,3%) trở về bình thường và 2 (7,1%) chuyển sang kiểu hình tắc nghẽn; đồng thời ghi nhận 12 trường hợp mới xuất hiện PRISm. **Kết luận:** PRISm là kiểu hình bất thường hô hấp ký thường gặp ở công nhân xây dựng và có tính chất động trong quá trình theo dõi. Cần các nghiên cứu với cỡ mẫu lớn hơn và thời gian theo dõi dài hơn để làm rõ vai trò của phơi nhiễm nghề nghiệp đối với PRISm.

Từ khóa: PRISm; hô hấp ký; công nhân xây dựng; chức năng hô hấp.