

ORIGINAL ARTICLE

Diagnostic delay and misdiagnosis in interstitial lung disease

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ABSTRACT

Background: Interstitial lung disease (ILD) comprises a heterogeneous group of diffuse parenchymal lung disorders characterized by progressive inflammation and fibrosis, leading to impaired pulmonary function, reduced quality of life, and increased mortality. Because the clinical and radiological manifestations of ILD often overlap with other respiratory and cardiac conditions, patients frequently experience diagnostic delay and misdiagnosis, resulting in inappropriate treatment and disease progression. This study aimed to determine the frequency of diagnostic delay and misdiagnosis among patients with interstitial lung disease and to assess their association with demographic and clinical factors.

Methods: This cross-sectional study was conducted at the Department of Pulmonology, from 6-02-2026 to 6-05-2026 including 194 patients with confirmed interstitial lung disease aged 18–80 years were included in the study. Diagnostic delay was defined as diagnosis made more than six months after onset of symptoms, while misdiagnosis was defined as any previous incorrect respiratory diagnosis before confirmation of interstitial lung disease. Data were analyzed using SPSS-25. Chi-square test and Fisher's Exact test were applied for stratified analysis.

Results: Mean age of the patients was 54.19 ± 17.28 years and mean BMI was 22.68 ± 3.01 kg/m². Females comprised 133 (68.6%) participants and 114 (58.8%) belonged to rural areas. The most common presenting symptom was breathlessness 94 (48.5%), followed by chronic cough 52 (26.8%). Misdiagnosis was observed in 136 (70.1%) patients, while diagnostic delay was identified in 142 (73.2%). Tuberculosis 40 (29.4%) and asthma 38 (27.9%) were the most frequent previous incorrect diagnoses. Idiopathic pulmonary fibrosis was the commonest type of interstitial lung disease 52 (26.8%). Diagnostic delay was significantly associated with age above 50 years ($p < 0.001$) and type of interstitial lung disease ($p = 0.026$).

Conclusion: Diagnostic delay and misdiagnosis were highly prevalent among patients with interstitial lung disease.

Keywords: Interstitial Lung Diseases; Pulmonary Fibrosis; Respiratory Tract Diseases; Tuberculosis

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Introduction

Interstitial Lung Disease (ILD) consists of various diseases affecting the interstitium and adjacent lung tissues (1). The most common types of ILD include idiopathic pulmonary

fibrosis, hypersensitivity pneumonitis, and connective tissue disease (2). The condition leads to inflammation and damage to the lungs, thus causing breathing difficulty and gas exchange impairment. Symptoms that patients normally exhibit include breathlessness upon exertion, a dry cough, and fatigue; however, some individuals may even develop clubbing of the fingers (3). Since ILD is associated with worsening lung damage, early detection and treatment are highly essential.

A diagnostic delay in patients with ILD is one of the major issues that can influence the prognosis of the disease adversely (4). There are many patients who suffer from the symptoms of this disease for months or even years before getting a right diagnosis (5). The signs and symptoms of ILD do not always help to diagnose the condition in time because they are usually not specific enough, being similar to the symptoms of other respiratory or cardiac diseases (6). There are many reasons why the process of diagnosis takes time.

There are also several instances where misdiagnosis has been observed in cases of ILD, which might contribute even further to the delay in treatment (7). It is not unusual for a patient to be diagnosed with common illnesses like asthma, COPD, pneumonia, or even heart failure due to their resemblance with some of the symptoms of ILD (8).

As a result, it leads to improper medication and multiple visits to the doctor, which do not show any positive results. Misdiagnosis could also happen due to similarity in radiographic features and clinical assessment of ILD (9).

Diagnostic delay and misdiagnosis continue to be major concerns in the management of interstitial lung disease. Failure to timely identify the condition could contribute to worsening of fibrosis and deterioration in

symptoms as well as quality of life of affected individuals. Similarly, failure to diagnose could cause affected individuals to undergo inappropriate treatments and add to health system burden. There is a paucity of local information on the subject. Therefore, this study is needed to determine the frequency of diagnostic delay and misdiagnosis in patients with interstitial lung disease to identify areas where earlier diagnosis and appropriate management can be improved.

Methods

This cross-sectional study was carried out in the Pulmonology Department of from 06 February 2026 to 06 May 2026. Ethical approval was obtained from the Institutional Review Board and Ethics Committee of Northwest General Hospital, Peshawar prior to commencement of the study (Ref: IRB&EC/2025-GH/0274). A total of 194 patients were enrolled. The sample size was calculated by using OpenEpi software with an anticipated frequency of misdiagnosis of 55% (10), confidence level of 95%, and margin of error of 7%.

Patients of either gender aged 18 to 80 years were included. Only those patients having Interstitial Lung Disease confirmed on the basis of clinical evaluation and imaging findings and having complete medical records regarding symptom onset, previous diagnoses, and diagnostic work-up timeline were selected. Patients having severe coexisting illnesses such as advanced malignancy, end-stage cardiac failure, or renal failure were excluded. Patients participating in other interventional clinical trials affecting diagnostic or treatment timelines were also excluded. In addition, patients with cognitive impairment or language difficulties preventing valid informed consent, even with assistance, were not included in the study.

Demographic details including age, gender, height, weight and residence were recorded. A detailed clinical history was obtained regarding duration of symptoms, nature of symptoms, date of symptom onset, number of healthcare visits and types of healthcare providers consulted. Relevant clinical examination findings were also reviewed from patient records where available. Information regarding previous diagnoses, investigations performed, treatment history and date of confirmed diagnosis was documented. Medical records were reviewed carefully and patient interviews were conducted to establish the diagnostic pathway. Any complications occurring during the period from symptom onset to diagnosis confirmation were also noted.

Interstitial Lung Disease was considered as a group of chronic pulmonary disorders characterized by fibrosis and inflammation of the lung interstitium, confirmed through clinical assessment and high-resolution computed tomography findings with or without lung biopsy according to established diagnostic criteria. Diagnostic delay was defined as the interval between the first symptom reported by the patient and the date of confirmed diagnosis established by the physician through clinical assessment and relevant investigations. The duration was measured in months. Those patients in which diagnosis made more than six months after symptoms onset was considered delayed, while those whose diagnosis was made within 6 months after the onset of symptoms were considered timely diagnosis. Misdiagnosis was regarded as the incorrect diagnosis of any other lung disorder by documentation or by patients' reporting about being misdiagnosed prior to being correctly diagnosed as suffering from interstitial lung disease (ILD). It meant that a wrong diagnosis of some other lung

disorder such as asthma, chronic obstructive pulmonary disease, lung tuberculosis, pneumonia, or any other respiratory disorder was made before diagnosing ILD using high-resolution computed tomography (HRCT).

Data were analyzed using Statistical Package for Social Sciences (SPSS) version 25. Continuous variables including age and time from onset of symptoms to confirmation of diagnosis were expressed as mean $\pm$ standard deviation. Categorical variables were presented as frequencies and percentages. Stratification was performed for variables such as age groups, gender and types of Interstitial Lung Disease to evaluate their association with diagnostic delay and misdiagnosis. Following stratification Chi-square test or Fisher's Exact test was applied where appropriate. A p-value of ≤ 0.05 was considered statistically significant.

Results

A total of 194 patients were included in the study. The mean age of the study participants was 54.19 ± 17.28 years, with a mean height of 161.79 ± 9.51 cm, mean weight of 59.61 ± 10.79 kg, and mean BMI of 22.68 ± 3.01 kg/m². The mean duration of symptoms prior to presentation was 20.64 ± 14.77 months. Regarding gender distribution, majority of the patients were female 133(68.6%), whilst males comprised 61(31.4%) of the cohort. In terms of educational background, primary level education was most prevalent 63(32.5%), followed by secondary education 49(25.3%), illiteracy 40 (20.6%), higher education 33 (17.0%), and graduate or postgraduate qualification 9 (4.6%). With respect to place of residence, 114 (58.8%) patients were from rural areas and 80 (41.2%) were from urban settings. Socioeconomic status revealed that majority belonged to low socioeconomic group 109 (56.2%), followed by middle 65(33.5%) and high 20 (10.3%) categories. The

most frequently reported presenting symptom was dyspnea 94 (48.5%), followed by chronic cough 52 (26.8%), fatigue 18(9.3%), weight loss 16(8.2%), chest pain 9(4.6%), and fever 5 (2.6%). Regarding smoking status, 158(81.4%) were never smokers, 26(13.4%) were current smokers, and 10 (5.2%) were ex-smokers. The commonest comorbidity was hypertension 60 (30.9%), followed by asthma or COPD 28 (14.4%), diabetes 25 (12.9%), coronary artery disease 12 (6.2%), and autoimmune disease 9 (4.6%), whilst 60 (30.9%) patients had no comorbidity (Table-1).

Table-1: Patient Demographics

Demographics	Mean $\pm$ SD
Age (years)	54.19 $\pm$ 17.28
Height (cm)	161.79 $\pm$ 9.51
Weight (kg)	59.61 $\pm$ 10.79
BMI (kg/m ²)	22.68 $\pm$ 3.01
Duration of Symptoms (months)	20.64 $\pm$ 14.77
Gender	
Male n (%)	61 (31.4%)
Female n (%)	133 (68.6%)
Education	
Illiterate n (%)	40 (20.6%)
Primary n (%)	63 (32.5%)
Secondary n (%)	49 (25.3%)
Higher n (%)	33 (17.0%)
Graduate/Postgraduate n (%)	9 (4.6%)
Residence	
Urban n (%)	80 (41.2%)
Rural n (%)	114 (58.8%)
Socioeconomic Status	
Low n (%)	109 (56.2%)
Middle n (%)	65 (33.5%)
High n (%)	20 (10.3%)
Presenting Symptom	
Chronic cough n (%)	52 (26.8%)
Dyspnoea n (%)	94 (48.5%)
Fatigue n (%)	18 (9.3%)
Chest pain n (%)	9 (4.6%)
Fever n (%)	5 (2.6%)
Weight loss n (%)	16 (8.2%)

Smoking Status	
Never smoker n (%)	158 (81.4%)
Ex-smoker n (%)	10 (5.2%)
Current smoker n (%)	26 (13.4%)
Comorbidity	
Diabetes n (%)	25 (12.9%)
Hypertension n (%)	60 (30.9%)
CAD n (%)	12 (6.2%)
Asthma/COPD n (%)	28 (14.4%)
Autoimmune disease n (%)	9 (4.6%)
None n (%)	60 (30.9%)

Misdiagnosis was present in 136 (70.1%) patients, whilst 58 (29.9%) were not misdiagnosed. Among those who were misdiagnosed, tuberculosis was the most common previous diagnosis 40 (29.4%), followed by asthma 38 (27.9%), bronchitis 26 (19.1%), COPD 19 (14.0%), other conditions 8 (5.9%), and heart failure 5 (3.7%). Diagnostic delay was identified in 142(73.2%) of the total patients, whereas 52 (26.8%) had no delay. With regards to the type of interstitial lung disease, idiopathic pulmonary fibrosis was the most frequent 52 (26.8%), followed by connective tissue disease-associated ILD 51 (26.3%), hypersensitivity pneumonitis 35 (18.0%), other ILD 21 (10.8%), sarcoidosis 22 (11.3%), and occupational or environmental ILD 13 (6.7%) (Table-2).

Table-2: Frequency of Diagnostic Delay and Misdiagnosis in Interstitial Lung Disease

Variables	Frequency	% age
Misdiagnosed		
Yes	136	70.10%
No	58	29.90%
Total	194	100%
Previous Diagnosis		
Asthma	38	27.90%
COPD	19	14.00%
Tuberculosis	40	29.40%
Bronchitis	26	19.10%

Heart Failure	5	3.70%
Other	8	5.90%
Total	136	100%
Delay in Diagnosis		
Yes	142	73.20%
No	52	26.80%
Total	194	100%
Type of ILD		
Idiopathic Pulmonary Fibrosis	52	26.80%
Connective Tissue Disease-associated ILD	51	26.30%
Hypersensitivity Pneumonitis	35	18.00%
Sarcoidosis	22	11.30%
Occupational/Environmental ILD	13	6.70%
Other ILD	21	10.80%
Total	194	100%

On stratified analysis, misdiagnosis was more frequent in patients aged above 50 years 93(73.2%) as compared to those aged 50 years or below 43(64.2%), however this difference was not statistically significant ($p=0.191$). Similarly, diagnostic delay was significantly more common in patients above 50 years of age 104(81.9%) as compared to younger patients 38(56.7%), with p -value less than 0.001. No significant association was found between gender and either misdiagnosis ($p=0.204$) or diagnostic delay ($p=0.821$). With respect to the type of ILD, no significant association was observed with misdiagnosis ($p=0.158$), however diagnostic delay showed a statistically significant association with ILD type ($p=0.026$), with hypersensitivity pneumonitis having the highest rate of delay 32(91.4%) (Table-3).

Table-3: Association of Misdiagnosis and Diagnostic Delay with Demographic and Clinical Factors

Variables	Subgroups	Misdiagnosed		p-value	Delay in Diagnosis		p-value
		Yes n(%)	No n(%)		Yes n(%)	No n(%)	
Age (years)	≤50	43 (64.2%)	24 (35.8%)	0.191*	38 (56.7%)	29 (43.3%)	<0.001*
	>50	93 (73.2%)	34 (26.8%)		104 (81.9%)	23 (18.1%)	
Gender	Male	39 (63.9%)	22 (36.1%)	0.204*	44 (72.1%)	17 (27.9%)	0.821*
	Female	97 (72.9%)	36 (27.1%)		98 (73.7%)	35 (26.3%)	
Type of ILD	Idiopathic Pulmonary Fibrosis	33 (63.5%)	19 (36.5%)	0.158**	36 (69.2%)	16 (30.8%)	0.026**
	Connective Tissue Disease-associated ILD	39 (76.5%)	12 (23.5%)		37 (72.5%)	14 (27.5%)	
	Hypersensitivity Pneumonitis	28 (80.0%)	7 (20.0%)		32 (91.4%)	3 (8.6%)	
	Sarcoidosis	13 (59.1%)	9 (40.9%)		11 (50.0%)	11 (50.0%)	
	Occupational/Environmental ILD	11 (84.6%)	2 (15.4%)		10 (76.9%)	3 (23.1%)	
	Other ILD	12 (57.1%)	9 (42.9%)		16 (76.2%)	5 (23.8%)	

*Chi-Square Test **Fisher's exact test

Discussion

The present study was conducted to evaluate the frequency of diagnostic delay and misdiagnosis in patients with interstitial lung disease along with its association with demographic and clinical factors. The overall

rate of misdiagnosis was notably high, as 136(70.1%) patients were incorrectly diagnosed prior to the final confirmation of ILD. This finding is not surprising, as ILD presents with non-specific symptoms such as dyspnea and chronic cough which are also

seen in more common respiratory conditions like asthma, COPD, and tuberculosis, making clinical differentiation quite difficult at initial presentation. In the present study, tuberculosis 40(29.4%) and asthma 38(27.9%) were the most frequent previous misdiagnoses, which is expected in a region where tuberculosis remains highly prevalent and shares overlapping radiological and clinical features with ILD. A total of 142(73.2%) patients were noted to have experienced diagnostic delays, which is quite a considerable number considering the difficulties involved in making a diagnosis of ILD, which involves HRCT scan, Pulmonary Function Testing, and even Histopathological correlation, not all of which are available in areas where resources are limited. There were significantly higher rates of diagnostic delay noted among patients aged 50+ years 104(81.9%) as compared to patients who were younger 38(56.7%), p -value <0.001 , perhaps due to the gradual progression of symptoms in older patients being ignored as simply a consequence of old age or due to other more common causes like hypertension and heart problems. Hypersensitivity Pneumonitis had the highest rate of diagnostic delay among ILD subtypes at 32(91.4%), and the reason could be related to the non-specific nature of its presentation, and the fact that the relevant history of exposures is generally not taken during routine history-taking (11).

The frequency of misdiagnosis in the present study was found to be 136(70.1%), which is notably high and is in agreement with the findings of Waseem *et al.* (12) who also reported substantial rates of misdiagnosis in ILD patients at a tertiary care hospital in Pakistan, suggesting that misdiagnosis remains a persistent problem in similar healthcare settings. Grant-Orser *et al.* (13) similarly identified initial misdiagnosis as one

of the leading causes of diagnostic delay, reported by 67% of physicians in their survey, which further corroborates the present findings. The predominance of tuberculosis 40(29.4%) and asthma 38(27.9%) as the most frequent previous misdiagnoses in the present study is understandable given the high burden of tuberculosis and obstructive airway disease in Pakistan, where these conditions are far more commonly encountered than ILD at primary care level, and their overlapping clinical and radiological features with ILD make early differentiation particularly challenging.

Diagnostic delay was identified in 142(73.2%) of the patients, which is consistent with the broader literature. Loo *et al.* (14) in their scoping review reported median diagnostic delays ranging from 12 to 25 months across multiple studies, and attributed this largely to lack of disease awareness and inadequate education at the primary care level. van der Sar *et al.* (15) similarly found that 40% of patients required one year or longer to receive a final diagnosis in a multinational European survey, though this proportion is somewhat lower than that observed in the present study, which may reflect differences in healthcare infrastructure, availability of diagnostic facilities, and level of ILD awareness between European and South Asian settings. Waseem *et al.* (12) reported a mean diagnostic delay of 18.43 ± 11.23 months in a Pakistani cohort, which is comparable to the symptom duration observed in the present study and further highlight the shared challenges faced in this region.

Older patients above 50 years of age showed significantly higher rates of diagnostic delay 104(81.9%) compared to younger patients 38(56.7%), with p -value less than 0.001. This is consistent with Waseem *et al.* (12) who also reported longer diagnostic delays among

individuals aged 50 to 65 years, and the underlying reason may be that symptoms such as dyspnoea and fatigue in older patients are frequently attributed to ageing, cardiac disease, or other comorbid conditions rather than a primary pulmonary pathology, thereby delaying appropriate investigation and specialist referral. Hoyer *et al.* (16) demonstrated that prolonged diagnostic delay was associated with significantly worse progression-free survival and higher hospitalization rates in IPF patients, which underline the clinical importance of reducing delay particularly in older age groups where disease may already be at a more advanced stage at the time of diagnosis (17-20).

Hypersensitivity pneumonitis showed the highest rate of diagnostic delay 32(91.4%) among all ILD subtypes, and this finding is in line with the observations of Case *et al.* (21) who emphasized through their Delphi consensus that improving clinician awareness regarding specific ILD subtypes and standardizing referral pathways are essential steps to reduce diagnostic delays. The high delay in hypersensitivity pneumonitis is likely because its diagnosis depends heavily on a detailed occupational and environmental exposure history, which is often not systematically obtained during routine consultations, and its radiological features can closely overlap with other ILD subtypes and even infectious conditions (22-25).

Conclusion

In the current research, it has been revealed that the incidence of delay in diagnosis and misdiagnosis is very high amongst individuals suffering from interstitial lung disease, and these represent major clinical problems in such areas. Misdiagnosis of tuberculosis and asthma was most commonly observed, which can be attributed to similar

symptoms exhibited by both these illnesses and interstitial lung disease.

Study Limitation and Future Implications:

A major limitation of this study is its single-center, cross-sectional design with a relatively small sample size, which may limit the generalizability of the findings. Additionally, reliance on patient interviews and medical records may have introduced recall bias. Future multicenter prospective studies with larger sample sizes are recommended to validate these findings and evaluate strategies such as clinician education, standardized referral pathways, and earlier use of HRCT to reduce diagnostic delay and misdiagnosis in interstitial lung disease.

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References

1. Shao T, Shi X, Yang S, Zhang W, Li X, Shu J. Interstitial lung disease in connective tissue disease: a common lesion with heterogeneous mechanisms and treatment considerations. *FrontImmunol.*2021;12:685071. doi:10.3389/fimmu.2021.685071.
2. Pereira CAC, Baldi BG, Kawassaki AM, Jezler S, Costa AN, Arantes AC, et al. Progressive fibrotic interstitial lung disease. *J Bras Pneumol.*2023;49(4):e20230117. doi:10.36416/1806-3756/e20230117.
3. Saeed S, Mohammed N, Maktabijahromi N, Ekhtator C, Arshad M. Idiopathic pulmonary fibrosis in a young adult: a rare presentation

- and management challenges. *Cureus*. 2023;15(8): e43010. doi:10.7759/cureus.43010.
4. Wijsenbeek MS, Bendstrup E, Valenzuela C, Henry MT, Antoniou KM, Vasakova M, et al. Risk stratifying interstitial lung abnormalities to guide early detection and management. *Am J Respir Crit Care Med*. 2022;205(1):15-17. doi:10.1164/rccm.202109-2146ED.
 5. Grant-Orser A, Johannson KA, Guler SA, Ryerson CJ, To T, Sadatsafavi M, et al. The diagnostic pathway for patients with interstitial lung disease: a mixed-methods study. *Eur Respir J*. 2024;63(5):2301824. doi:10.1183/13993003.01824-2023.
 6. Wang X, Xia X, Hou Y, Zhang H, Han W, Sun J, et al. Diagnosis of early idiopathic pulmonary fibrosis: current status and future perspective. *Respir Res*. 2025;26(1):192. doi:10.1186/s12931-025-03270-1.
 7. Case AH, Guler SA, Johannson KA, Ryerson CJ, To T, Sadatsafavi M, et al. Defining the pathway to timely diagnosis and treatment of interstitial lung disease: a Delphi survey. *ERJ OpenRes*. 2023;9(6):00433-2023. doi:10.1183/23120541.00433-2023.
 8. Palmucci S, Roccasalva F, Puglisi S, Torrisi SE, Vindigni V, Mauro LA, et al. Clinical and radiological features of lung disorders related to SAPHO syndrome: a case series and review of-the literature. *BMC Pulm Med*. 2022;22(1):251. doi:10.1186/s12890-022-02043-w.
 9. Geftter WB, Postwan S, Itkin M, Galperin-Aizenberg M, Katz SI, Miller WT Jr. Commonly missed findings on chest radiographs: causes and consequences. *Radiographics*. 2022;42(2):311-31. doi:10.1148/rg.210113.
 10. Arcana RI, Crişan-Dabija RA, Caba B, Zamfir AS, Cernomaz TA, Zabara-Antal A, et al. Speaking of the "devil": diagnostic errors in interstitial lung diseases. *J Pers Med*. 2023;13(11):1589. doi:10.3390/jpm13111589.
 11. Swaminathan AC, McFatrigh M, Mkumba L, Wright L, Redlich CA, Snyder LD, et al. Development and evaluation of a questionnaire to capture environmental and occupational inhalational exposures in adults with fibrotic interstitial lung disease. *Respir Res*. 2024;25(1):372. doi:10.1186/s12931-024-03000-z.
 12. Waseem M, Shahid AB, Pervaiz S, Waseem J. Diagnostic delay and misdiagnosis in interstitial lung disease: experience of a tertiary care hospital of Punjab, Pakistan. *Rawal Med J*. 2022;47(3):556-9.
 13. Grant-Orser A, Pooler C, Archibald N, Fell C, Ferrara G, Johannson KA, et al. The diagnostic pathway for patients with interstitial lung disease: a mixed-methods study of patients and physicians. *BMJ Open Respir Res*. 2024;11: e002333. doi:10.1136/bmjresp-2024-002333.
 14. Loo HN, Ismail A, Ibrahim R, Ban AYL, Machmud R. Diagnosis delay of diffuse parenchymal lung disease and its associated factors: a scoping review. *Med Health*. 2025;20(2):453-69. doi:10.17576/MH.2025.2002.03.
 15. van der Sar IG, Jones S, Clarke DL, Bonella F, Fourrier JM, Lewandowska K, et al. Patient reported experiences and delays during the diagnostic pathway for pulmonary fibrosis: a multi-national European survey. *Front Med (Lausanne)*. 2021;8: 711194. doi:10.3389/fmed.2021.711194.
 16. Hoyer N, Prior TS, Bendstrup E, et al. Diagnostic delay in IPF impacts progression-free survival, quality of life and hospitalisation rates. *BMJ Open Respir Res* 2022;9: e001276. doi:10.1136/bmjresp-2022-001276
 17. Castelo M, Sue-Chue-Lam C, Paszat L, Scheer AS, Hansen BE, Kishibe T, et al. Clinical delays and comparative outcomes in younger and older adults with colorectal cancer: a systematic review. *Curr Oncol*. 2022;29(11):8609-25. doi:10.3390/curroncol29110679.
 18. Avelino-Silva TJ, Steinman MA. Diagnostic discrepancies between emergency department admissions and hospital

- discharges among older adults: secondary analysis on a population-based survey. *Sao Paulo Med J.* 2020;138(5):359-67. doi:10.1590/1516-3180.0471.
19. Hay CA, Packham J, Ryan S, Mallen CD, Chatzixenitidis A, Prior JA. Diagnostic delay in axial spondyloarthritis: a systematic review. *ClinRheumatol.*2022;41(7):1939-50. doi:10.1007/s10067-022-06100-7.
 20. Zhao SS, Pittam B, Harrison NL, Ahmed AE, Goodson NJ, Hughes DM. Diagnostic delay in axial spondyloarthritis: a systematic review and meta-analysis. *Rheumatology (Oxford).* 2021;60(4):1620-28. doi:10.1093/rheumatology/keaa807.
 21. Case AH, Beegle S, Hotchkin DL, Kaelin T, Kim HJ, Podolanczuk AJ, et al. Defining the pathway to timely diagnosis and treatment of interstitial lung disease: a US Delphi survey. *BMJ Open Respir Res.* 2023;10(1): e001594. doi:10.1136/bmjresp-2022-001594.
 22. Akkale T, Sari G, Şimşek C. Occupational hypersensitivity pneumonia. *Tuberk Toraks.* 2023;71(1):94-104. doi:10.5578/tt.20239911.
 23. Alberti ML, Rincon-Alvarez E, Buendia-Roldan I, Selman M. Hypersensitivity pneumonitis: diagnostic and therapeutic challenges. *Front Med (Lausanne).* 2021; 8:718299. doi:10.3389/fmed.2021.718299.
 24. Leone PM, Richeldi L. Current diagnosis and management of hypersensitivity pneumonitis. *Tuberc Respir Dis (Seoul).* 2020;83(2):122-31. doi:10.4046/trd.2020.0012.
 25. Kim YR, Chung SW, Kim MJ, Choi WM, Choi J, Lee D, et al. Limited generalizability of retrospective single-center cohort study in comparison to multicenter cohort study on prognosis of hepatocellular carcinoma. *J Hepatocell Carcinoma.*2024;11:1235-49. doi:10.2147/JHC.S456093.

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All the authors agree to take responsibility for every facet of the work, making sure that any concerns about its integrity or veracity are thoroughly examined and addressed.	