

**Table S1.** Quality assessment of cohort and cross-sectional studies.

NIH Quality Assessment tool for cohort and cross-sectional studies																
Study ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Score	Quality
Tschopp et al. (2002)	Yes	Yes	Yes	Yes	CD	CD	NA	Yes	Yes	NA	Yes	Yes	No	Yes	9	Fair
Arnas-de Larriba et al. (2010)	Yes	Yes	Yes	Yes	CD	CD	NA	Yes	No	NA	No	Yes	CD	Yes	6	Fair
Lakey et al. (2011)	Yes	Yes	Yes	Yes	CD	CD	NA	Yes	Yes	NA	Yes	Yes	No	Yes	10	Good
Makras et al. (2011)	Yes	Yes	Yes	Yes	CD	CD	NA	Yes	Yes	NA	Yes	Yes	CD	Yes	9	Fair
caffarelli_2016	yes	yes	NR	yes	no	no	NA	Yes	yes	no	yes	NR	NA	Yes	7	fair
calmarza_2024	yes	yes	CD	Yes	NR	Yes	yes	no	CD	no	yes	NR	NA	no	6	fair
Yıldızgören_2016	yes	yes	NR	yes	no	no	yes	yes	no	no	yes	no	NA	yes	7	fair





Scoring System:

Answer each item as Yes = 1, No = 0, or CD (cannot determine), NA (not applicable), NR (not reported) = 0.

Quality ratings: Good = 10–14, Fair = 5–9, Poor = 0–4.

**Table S2.** Quality assessment of case-control studies.

Study ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Score	Quality
Men a- Váz quez et al. (2020)	Yes	Yes	Yes	NO	Yes	Yes	NR	Yes	Yes	Yes	Yes	Yes	9	GOOD

### Quality Assessment Questions

Q1. Was the research question or objective in this paper clearly stated and appropriate?

Q2. Was the study population clearly specified and defined?

Q3. Did the authors include a sample size justification?

Q4. Were controls selected or recruited from the same or similar population that gave rise to the cases (including the same timeframe)?

Q5. Were the definitions, inclusion and exclusion criteria, algorithms, or processes used to identify or select cases and controls valid, reliable, and implemented consistently across all study participants?

Q6. Were the cases clearly defined and differentiated from controls?

Q7. If less than 100% of eligible cases and/or controls were selected for the study, were they randomly selected

from those eligible?

Q8. Was there use of concurrent controls?

Q9. Were the investigators able to confirm that the exposure or risk occurred prior to the development of the condition or event that defined a participant as a case?

Q10. Were the measures of exposure or risk clearly defined, valid, reliable, and implemented consistently (including the same time period) across all study participants?

Q11. Were the assessors of exposure or risk blinded to the case or control status of participants?

Q12. Were key potential confounding variables measured and statistically adjusted for in the analyses? If matching was used, did the investigators account for matching during the study analysis?

Scoring System:

Answers are recorded as Yes = 1, No = 0, or CD (cannot determine), NR (not reported), NA (not applicable) = 0.

Quality rating:

Good: 9–12

Fair: 5–8

Poor: 0–4

## Search strategy

```
(
  "Lung Diseases, Interstitial"[Mesh] OR "Pulmonary Fibrosis"[Mesh]
  OR "interstitial lung disease"[tiab] OR ILD[tiab] OR "interstitial pneumonia"[tiab]
  OR "pulmonary fibrosis"[tiab] OR "idiopathic pulmonary fibrosis"[tiab] OR
  IPF[tiab]
  OR NSIP[tiab] OR "hypersensitivity pneumonitis"[tiab]
  OR "diffuse parenchymal lung disease"[tiab] OR DPLD[tiab]
)
AND
(
  "Osteoporosis"[Mesh] OR "Bone Density"[Mesh]
  OR osteoporosis[tiab] OR osteopenia[tiab]
  OR "bone mineral density"[tiab] OR "bone densit*"[tiab] OR BMD[tiab]
  OR DXA[tiab] OR DEXA[tiab] OR "dual-energy x-ray absorptiometry"[tiab]
  OR densitometr*[tiab] OR "T-score"[tiab] OR "Z-score"[tiab]
)
AND
(
  prevalen*[tiab] OR proportion*[tiab] OR frequency[tiab] OR rate*[tiab]
  OR "cross-sectional"[tiab] OR "cross sectional"[tiab] OR cohort*[tiab]
  OR observational[tiab] OR baseline[tiab]
  OR retrospectiv*[tiab] OR prospectiv*[tiab] OR longitudin*[tiab] OR
  ("retrospective"[tiab] AND "cross-sectional"[tiab])
  OR registr*[tiab] OR "registry-based"[tiab]
  OR "claims"[tiab] OR "claims database*"[tiab] OR "insurance claims"[tiab] OR
  "administrative data"[tiab]
  OR "medical record*"[tiab] OR "record review*"[tiab] OR "chart review*"[tiab]
  OR "electronic health record*"[tiab] OR EHR[tiab] OR EMR[tiab]
  OR "population-based"[tiab] OR "community-based"[tiab] OR "hospital-
  based"[tiab] OR "clinic-based"[tiab]
  OR multicenter[tiab] OR multicentre[tiab] OR "single-center"[tiab] OR "single-
  centre"[tiab]
  OR survey*[tiab]
)
NOT (animals[MeSH Terms] NOT humans[MeSH Terms])
NOT (Case Reports[Publication Type] OR "case report"[ti] OR "case series"[tiab])
NOT ("Cystic Fibrosis"[Mesh] OR "Lung Transplantation"[Mesh] OR "Bone
Neoplasms"[Mesh] OR "Bone Neoplasms/secondary"[Mesh] OR "bone
metastas*"[tiab])
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Table 2 **Search strategy**

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