

Influence of Comorbidities on Long-term Clinical Outcomes in Severe Asthma: Insights from the German Asthma Net (GAN)

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Rationale

Comorbidities are increasingly recognized as crucial factors in asthma, though their exact impact remains unclear.

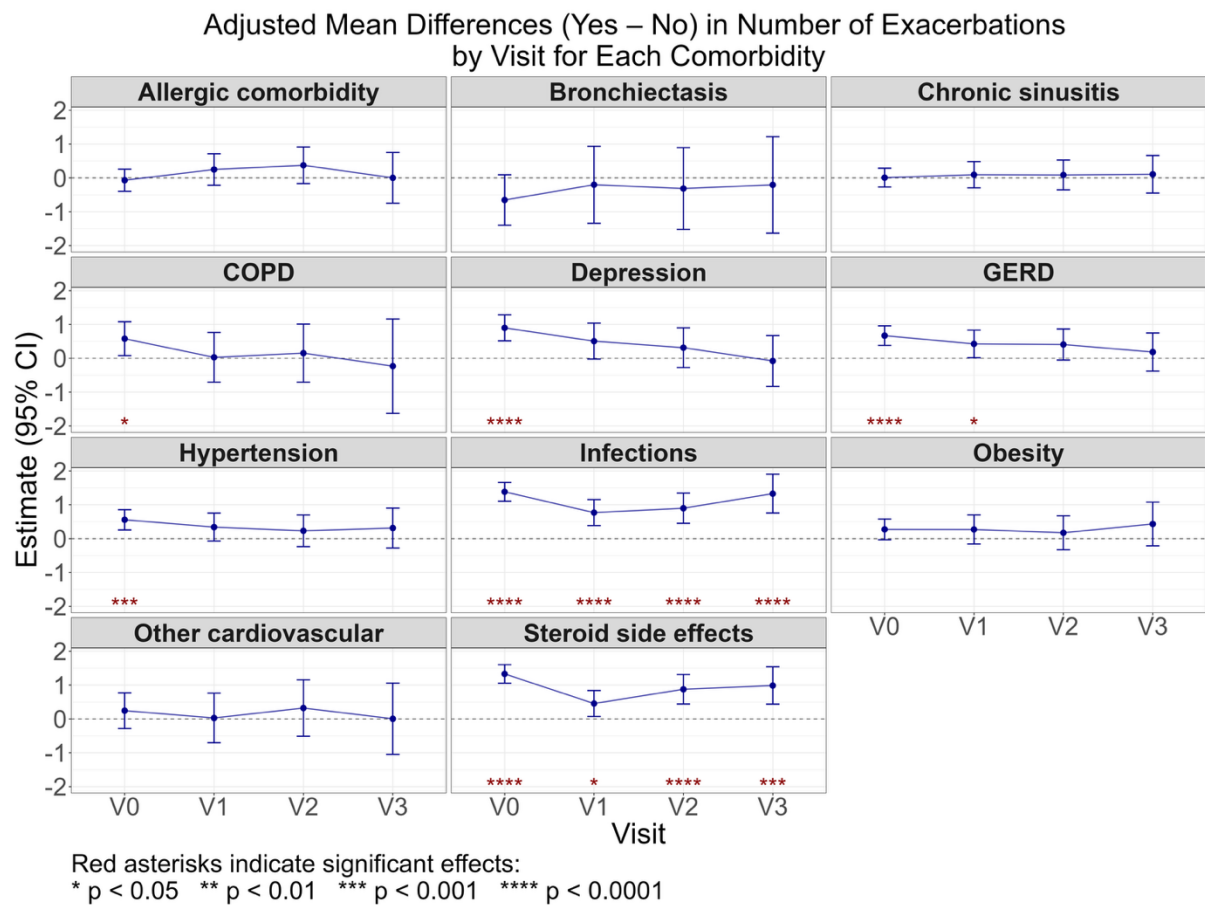
Methods

We analyzed associations between comorbidities and asthma outcomes over 3 years in 2,572 patients from the German Severe Asthma Registry using age- and gender-adjusted mixed-effects models. Comorbidity, time point, and their interaction were included as fixed effects, with patient as a random effect. Adjusted marginal effects were estimated to assess the impact of each comorbidity at individual time points.

Results

Study population	
Age - yr (mean ± SD)	53.7 ± 13.5
Female - n (%)	1486 (57.8)
BMI - kg/m2 (mean ± SD)	27.7 ± 6
Never - smokers -n (%)	1377 (53.5)
Ex-smokers - n (%)	1121 (43.6)
Duration of asthma -yrs (median, IQR)	8 (7-31)
Predominantly allergic asthma - n (%)	1090 (42.5)
ACT - score (mean ± SD)	14.41 ± 5.2
FEV1% (mean ± SD)	66.07 ± 21.9
Exacerbations in previous year - (median/IQR)	2 (1-4)
Maintenance oral corticosteroids - n (%)	893 (34.7)
Number of comorbidities (mean ± SD)	4.2 ± 2

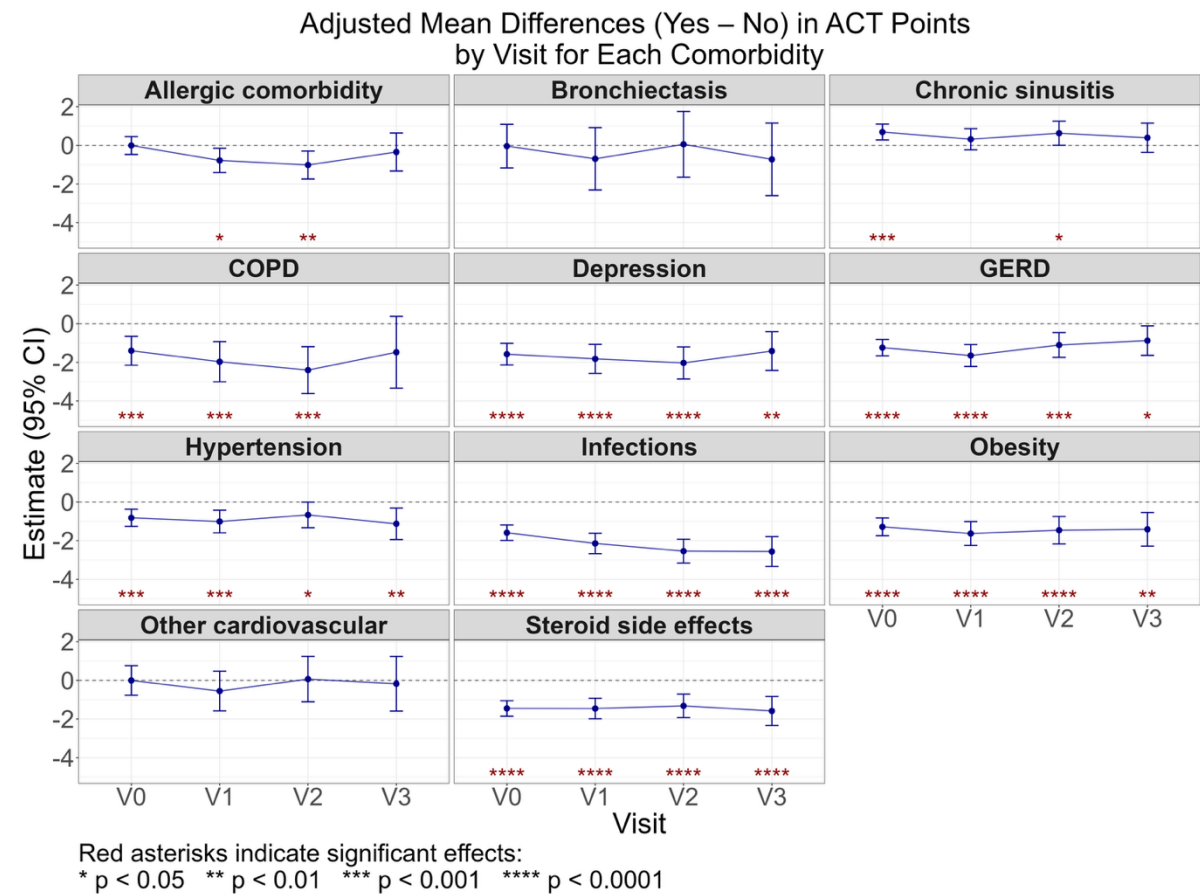
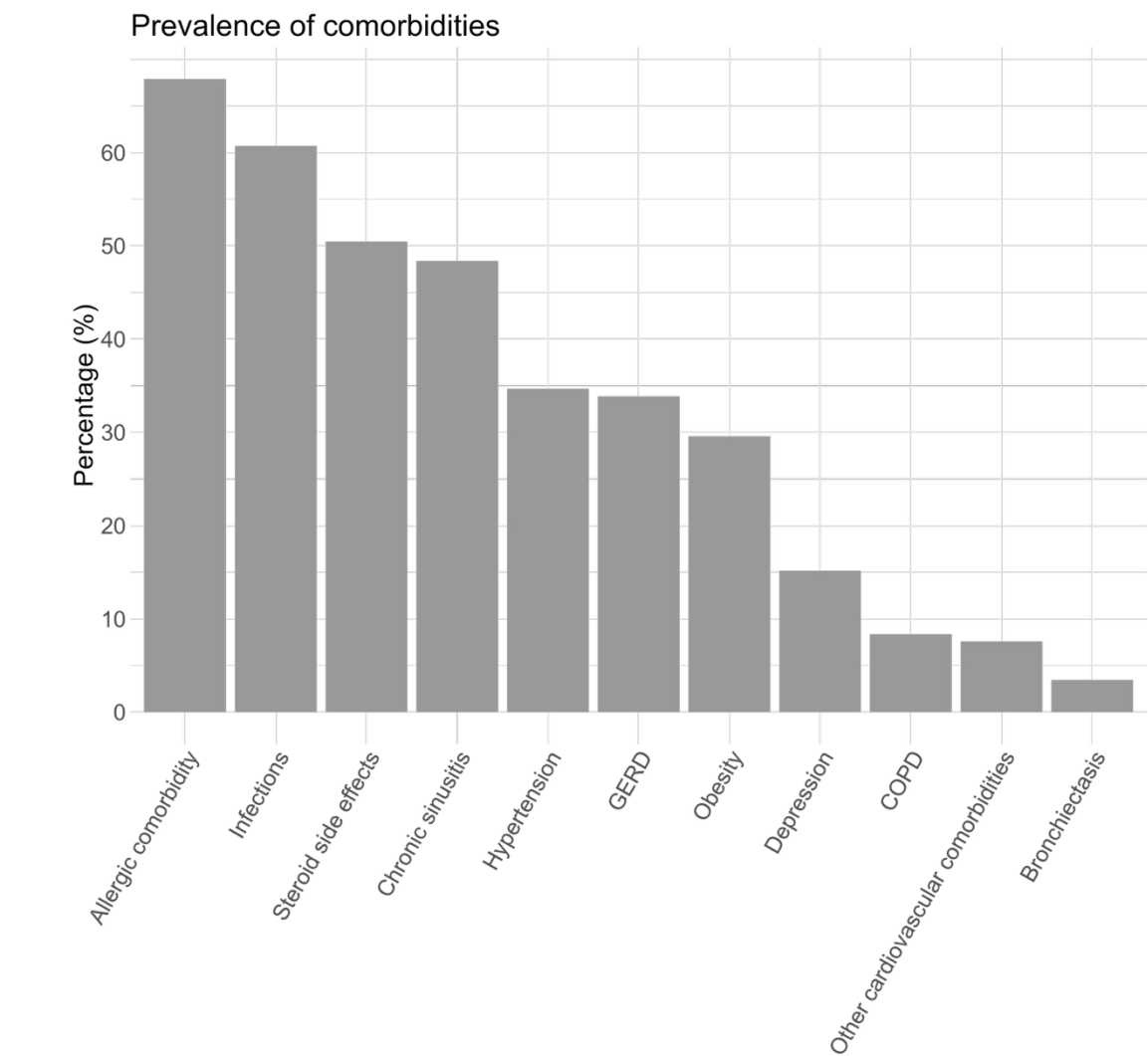
Abbreviations: ACT, asthma control test. AEs, acute exacerbations. COPD, chronic obstructive pulmonary disease. CVD, other cardiovascular disease. FEV1%, forced expiratory volume in 1 second. FRI, frequent respiratory infections. GERD, gastroesophageal reflux disease. OCS-C, oral corticosteroids-related conditions



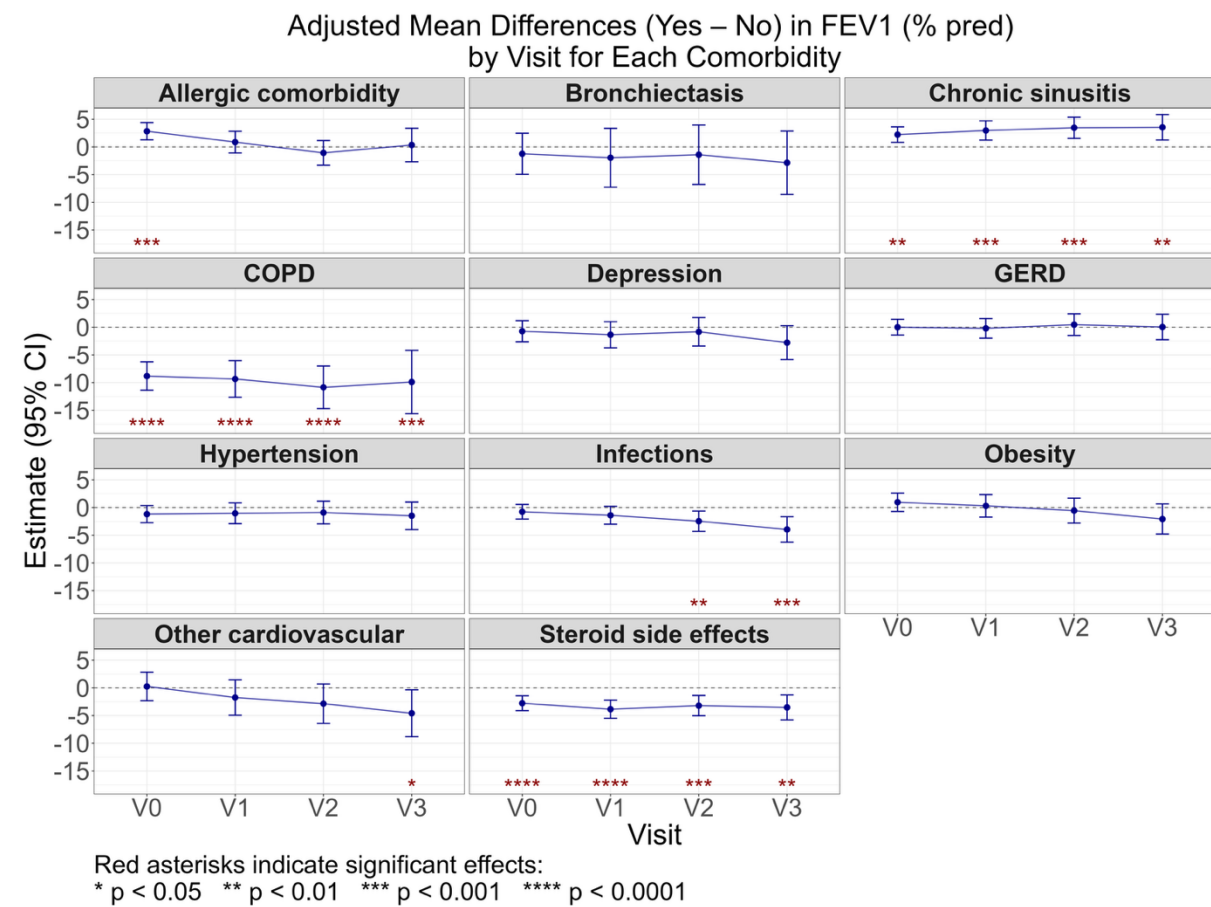
- **Oral corticosteroids –related conditions (OCS-C) and frequent respiratory infections (FRI) were linked to more AEs over 3 years; OCS-C impact declined over time.**
- **GERD, hypertension, depression, and COPD were associated with more AEs, especially in year 1, with diminishing effects thereafter.**

- **OCS-C, FRI, COPD, GERD, hypertension, depression, and obesity linked to worse ACT; strongest impact in year 1**

Results



- **OCS-C and COPD** consistently linked to lower **FEV1%**.
- **FRI** showed stronger impact in years 2–3.
- **Cardiovascular diseases** associated with lower **FEV1%** in year 3.



Conclusions

Comorbidities have a significant and varying impact on long-term outcomes in severe asthma, highlighting the need for early and continuous management.

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