

Patterns of Sinonasal Symptoms in Patients with ANCA-Associated Vasculitis

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Background/Purpose

- Sinonasal disease is prominent in ANCA-associated vasculitis (AAV), yet studies lack detailed information about severity and types of sinonasal symptoms.
- Using an international patient research network, we examined patterns of sinonasal symptoms in AAV using the Sino-Nasal Outcome Test-22 (SNOT-22), a validated patient-reported outcome for chronic rhinosinusitis.

Methods

- **Population:** 721 patients with self-reported AAV from 25 countries were recruited between January and May 2025 through the international Vasculitis Patient-Powered Research Network.
- **Sinonasal symptom profiles:** Participants completed a 5-minute survey rating 26 sinonasal symptoms on a Likert scale from 0 (no problem) to 5 (problem as bad as it can be). The 26 symptoms included the original 22 items from the SNOT-22 plus 4 additional items related to vasculitis (termed "SNOT-22+"). The 4 vasculitis-specific items were selected based on patient and investigator input and included: nasal crusting, blood-tinged nasal discharge/crusts, nose bleeds, and nasal pain.
- **Outcome:** Active vs remission by self-report
- **Analysis:**
 - Total and subdomain scores of the SNOT-22+ were compared using linear regression.
 - Individual SNOT-22+ items associated with active vasculitis versus remission were determined using LASSO-penalized logistic regression.
 - K-means clustering defined symptom-based subgroups. Characteristics were compared between clusters.

Funding: R01-AR084646 National Institute of Arthritis and Musculoskeletal and Skin Diseases

The VPPRN is supported in part by funds from the Vasculitis Foundation, Amgen, AstraZeneca, and GlaxoSmithKline.

International Recruitment of Patients with AAV



Figure 1. Geographical Distribution of Patients Recruited into Study.

721 patients with AAV were recruited from 25 countries.

Total and subdomain sinonasal symptom scores by disease activity

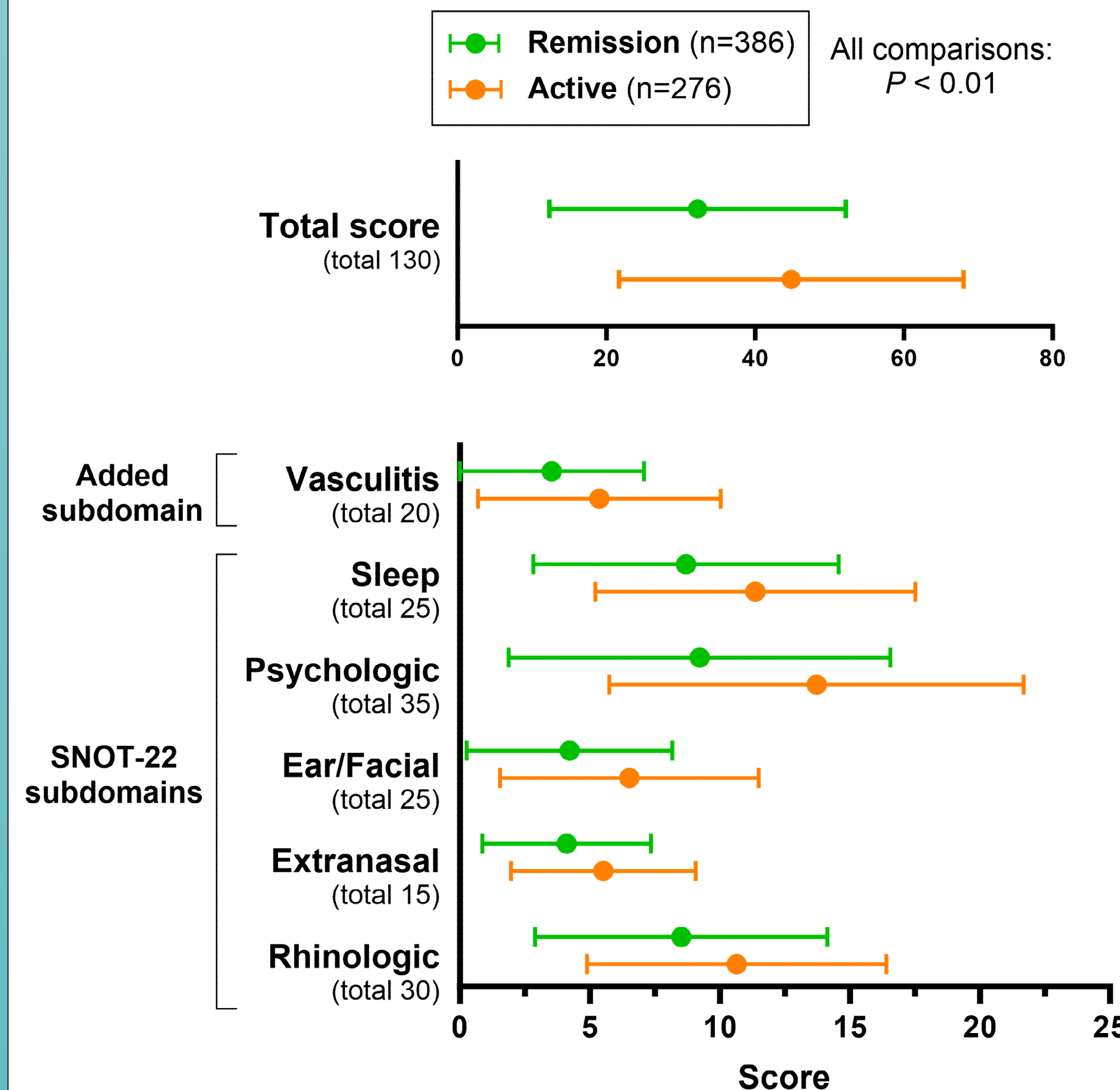


Figure 2. Comparison of Sino-Nasal Outcome Test-22+ Total and Subdomain Scores by Disease Activity in Patients with ANCA-Associated Vasculitis.

- Patients with active disease had significantly elevated scores compared to remission across all domains ($p < 0.01$).
- However, patients in remission continued to have a high burden of symptoms.

Results

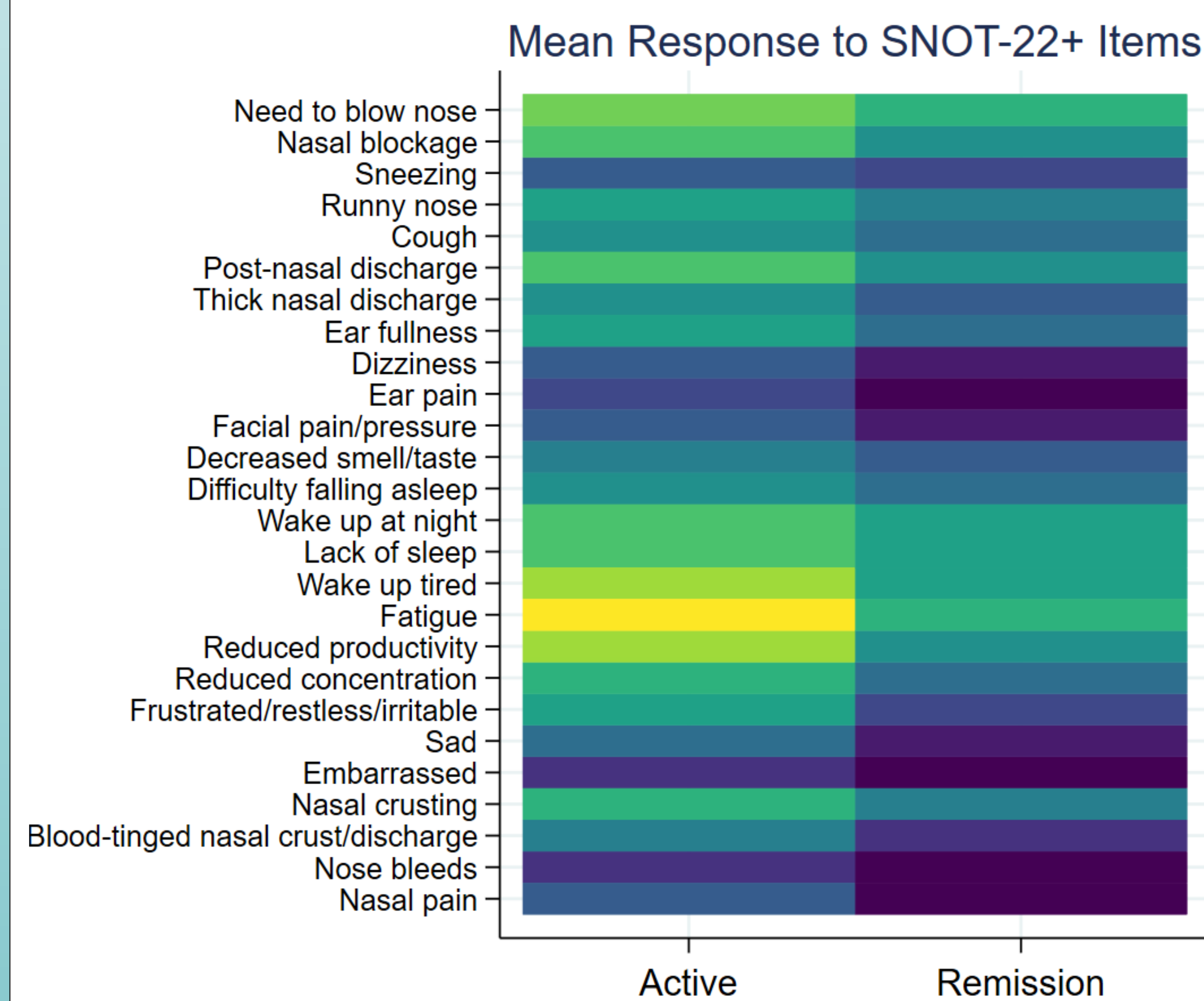


Figure 3. Heatmap of Mean Response to Individual Items in the SNOT-22+ by Disease Activity in ANCA-Associated Vasculitis

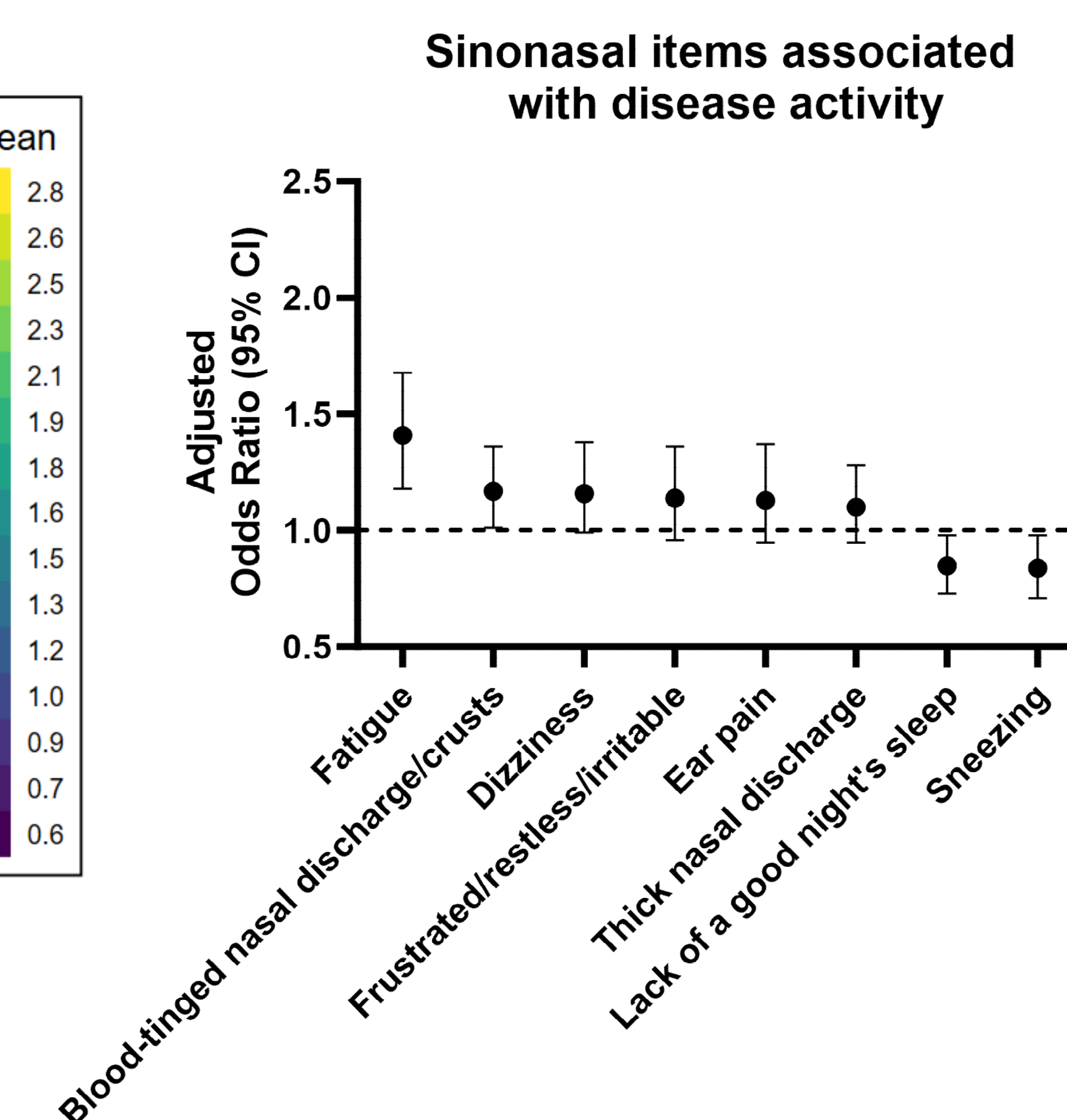


Figure 4. Association of Disease Activity with Sinonasal Items Selected in Post-LASSO Regression Model

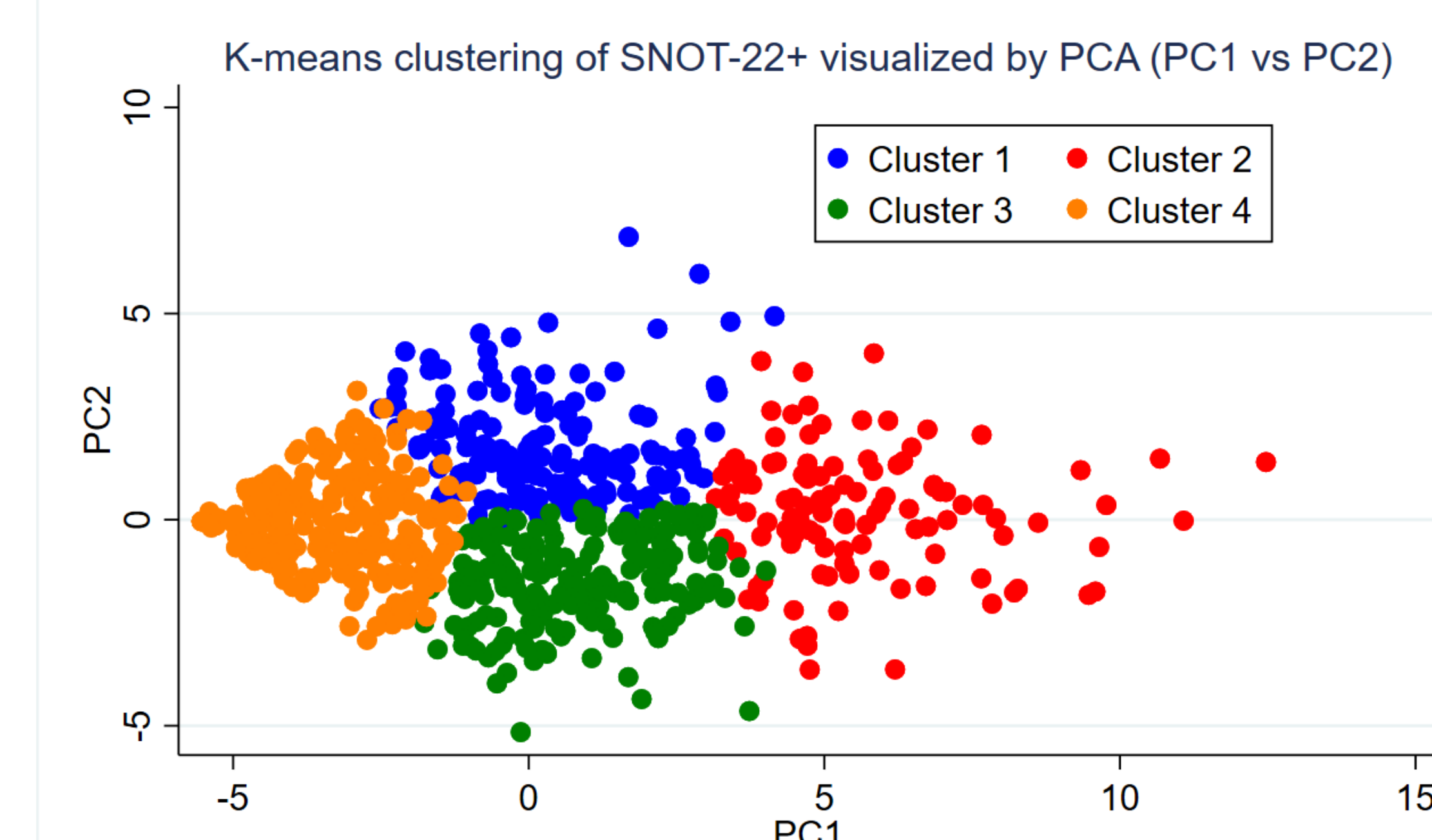


Figure 5. PCA Plot of Clusters Based on Sinonasal Symptom Profiles.

Active disease and infections were more prevalent in Cluster 2 and less prevalent in Cluster 4.

Conclusions

- Patients with AAV have substantial heterogeneity in sinonasal symptoms. Detailed assessment identifies specific symptoms linked to active disease, though many patients in remission still report a high symptom burden.
- A 5-minute SNOT-22 survey incorporating vasculitis-specific items provides a practical tool to capture sinonasal symptoms and support clinical evaluation.
- Future studies should evaluate the use of SNOT-22+ to predict relapse and monitor treatment response.