

Seasonal Variation of Baseline Chronic Rhinosinusitis Symptomatology



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Abstract

Introduction: Although chronic rhinosinusitis (CRS) exacerbation frequency may vary throughout the year, it is unknown whether there is seasonal variation in the baseline sinonasal symptomatology of CRS.

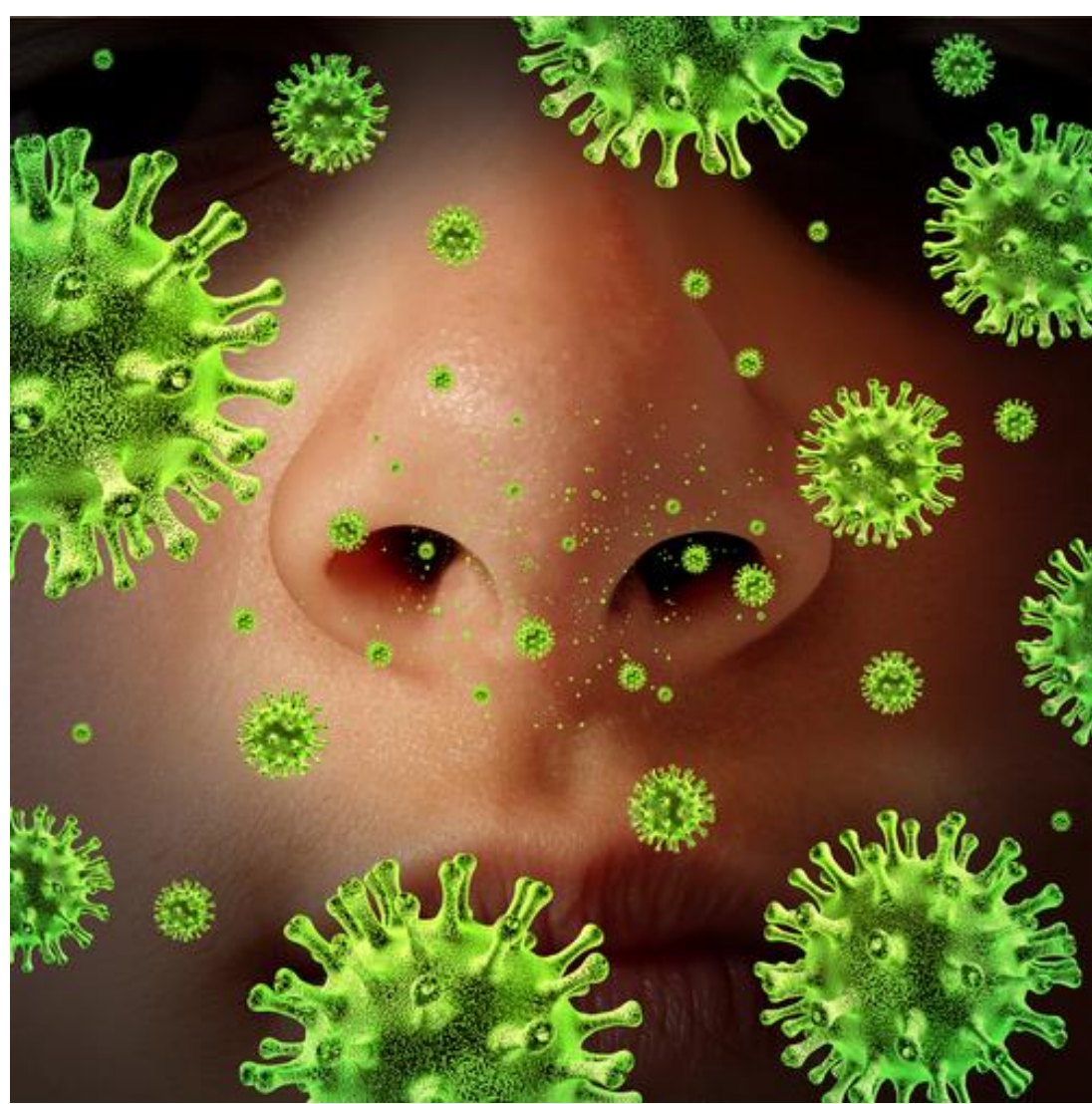
Methods: Cross-sectional study of 300 individuals with CRS. In order to capture baseline symptomatology, individuals with acute CRS exacerbations were excluded. Sinonasal symptomatology was quantified using the 22-item Sinonasal Outcomes Test (SNOT-22) survey. The season (Winter, Spring, Summer or Fall) when the SNOT-22 was completed was recorded. Linear regression, controlling for clinical and demographic characteristics, was performed to seek association between season of the year and SNOT-22 score.

Results: Of these patients, 25.3% had a history of smoking, 44.0% had aeroallergen hypersensitivity, 27.3% had asthma, 42.0% had nasal polyps, and 65.3% were using topical nasal steroids. The mean SNOT-22 scores were 21.5 for those individuals queried in the Fall, 45.9 for those queried in the Winter, 33.5 in the Spring and 32.6 in the Summer. Compared to SNOT-22s completed in the Fall, there was a statistically significant association with higher SNOT-22 score from the Winter (adjusted $\beta=17.5$, 95%CI: 1.6–33.4, $p=0.032$) but not from the Spring (adjusted $\beta=10.8$, 95%CI: -1.8–23.4, $p=0.095$) or Summer (adjusted $\beta=9.0$, 95%CI: -3.4–21.3, $p=0.158$).

Conclusions and Relevance: There is seasonal variation in CRS symptomatology in the Northeast. Winter is associated with the greatest increase in baseline CRS symptomatology. Although this result is independent of having any aeroallergen hypersensitivity, further work is necessary to determine whether such seasonal variation in CRS symptomatology is related to hypersensitivity to specific aeroallergens.

Introduction

- CRS is an inflammatory disease of the sinonasal mucosa that impacts quality of life through sinonasal symptomatology, acute CRS exacerbations and exacerbation of comorbid pulmonary disease.¹⁻³
- The 22-Item Sinonasal Outcomes Test (SNOT-22) survey is one validated means to quantify baseline sinonasal symptomatology in CRS patients.⁴
- CRS exacerbations are twice as likely to present in the winter season relative to spring, summer or fall.⁵
- Less is understood regarding how baseline CRS symptomatology varies across seasons.



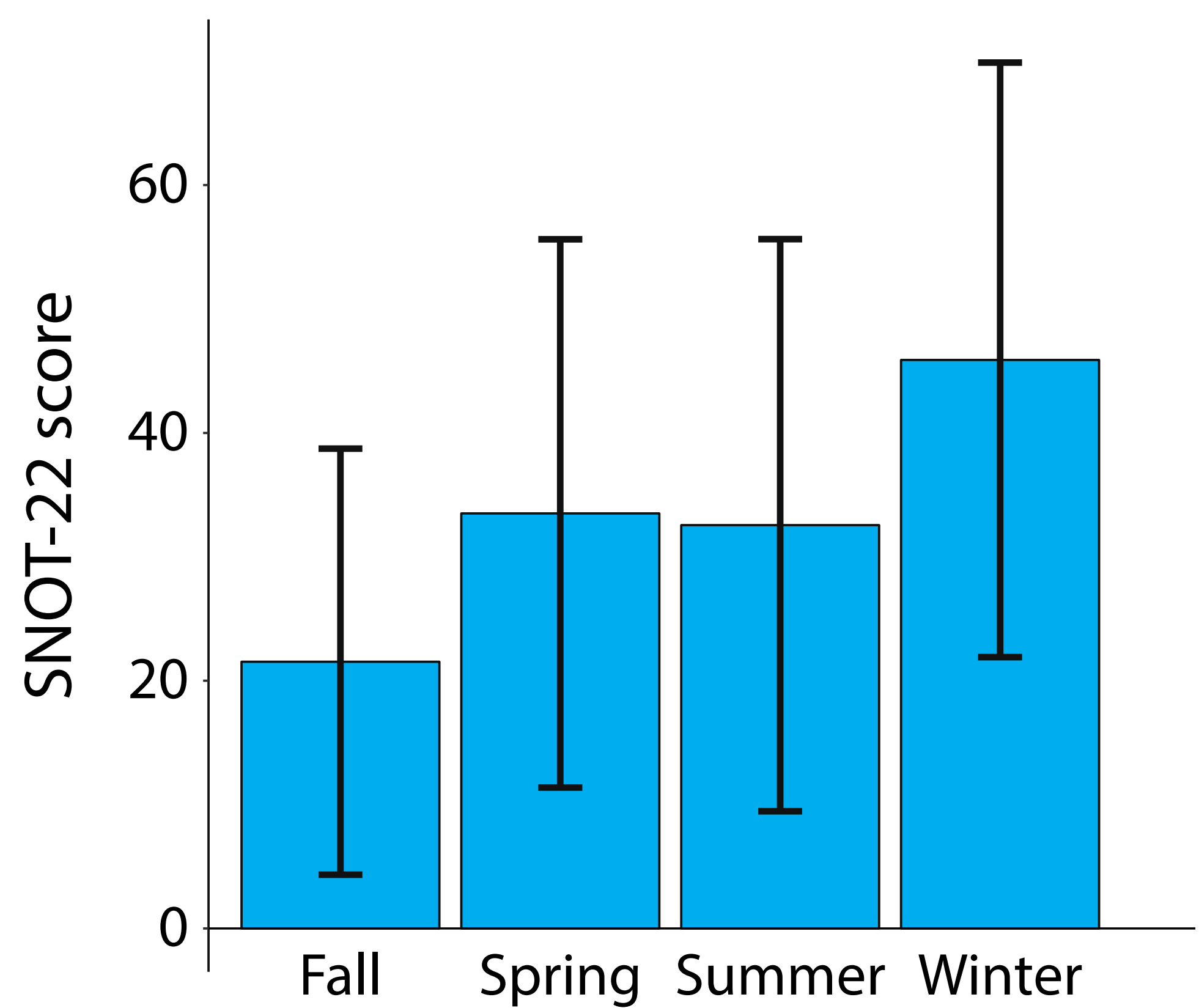
Sino-Nasal Outcome Test-22 Questionnaire v4

Below you will find a list of symptoms and social/emotional consequences of your nasal disorder. We would like to know more about these problems and would appreciate you answering the following question to the best of your ability. There are no right or wrong answers, and only you can provide us with this information. Please rate your problems, as they have been over the past two weeks. Thank you for your participation.

Considering how severe the problem is when you experience it and how frequently it happens, please rate each item below on how bad it is by circling the number that corresponds with how you feel using this scale:	0	1	2	3	4	5
1. Need to blow nose	0	1	2	3	4	5
2. Sneezing	0	1	2	3	4	5
3. Runny nose	0	1	2	3	4	5
4. Cough	0	1	2	3	4	5
5. Post nasal discharge (mucus in the back of your throat)	0	1	2	3	4	5
6. Thick nasal discharge	0	1	2	3	4	5
7. Ear fullness	0	1	2	3	4	5
8. Dizziness	0	1	2	3	4	5
9. Ear pain/pressure	0	1	2	3	4	5
10. Facial pain/pressure	0	1	2	3	4	5
11. Difficulty falling asleep	0	1	2	3	4	5
12. Waking up at night	0	1	2	3	4	5
13. Lack of a good night's sleep	0	1	2	3	4	5
14. Waking up tired	0	1	2	3	4	5
15. Fatigue during the day	0	1	2	3	4	5
16. Reduced productivity	0	1	2	3	4	5
17. Reduced concentration	0	1	2	3	4	5
18. Frustrated/irritated/irritable	0	1	2	3	4	5
19. Sad	0	1	2	3	4	5
20. Embarrassed	0	1	2	3	4	5
21. Sense of taste/smell	0	1	2	3	4	5
22. Blockage/congestion of nose	0	1	2	3	4	5
TOTAL:						

Results

	Study Participants (n=300)
Demographics	
Age, mean in years (SD)	51.2 (15.6)
Gender	
Male	51.5%
Female	48.5%
Smoking Status	25.3%
Comorbidities	
Aeroallergen hypersensitivity	44.0%
Asthma	27.3%
Aspirin Sensitivity	5.0%
CRS Characteristics	
Nasal polyps	42.0%
Previous Sinus Surgery	33.0%
Intranasal steroid use	65.3%



- Compared to SNOT-22s completed in the Fall, there was a statistically significant association with higher SNOT-22 score from the Winter (adjusted $\beta=17.5$, 95%CI: 1.6–33.4, $p=0.032$).
- Compared to the Fall, there was not a statistically significant association with higher SNOT-22 score from the Spring (adjusted $\beta=10.8$, 95%CI: -1.8–23.4, $p=0.095$) or Summer (adjusted $\beta=9.0$, 95%CI: -3.4–21.3, $p=0.158$).

Methods and Materials

- Prospective cross-sectional study of 300 patients with CRS.
- Clinical and demographic characteristics were recorded.
- Sinonasal symptomatology was quantified with SNOT-22 survey.
- The season when SNOT-22 was obtained was recorded.
- Linear regression, controlling for clinical and demographic characteristics, was performed to seek association between season of the year and SNOT-22 score.

Conclusions

- For patients with CRS living in the Northeast region of the United States, the Winter season is associated with higher baseline CRS symptomatology.
- Further study is needed to elucidate whether this increased symptomatology in the winter is related to specific environmental exposures.

Contact

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