Table S1. Five Likert scale questions used to create nasal and sinus symptom (NSS) impact index

|  |  |
| --- | --- |
| **Question #** | **Question text** |
| Q1 | On the day(s) you went to work with nasal and sinus symptoms, on average, how much of the time did you just do no work when you were supposed to be working? |
| Q2 | On the day(s) you went to work with nasal and sinus symptoms, how much of the time did you spend doing a job over because you made a mistake or your supervisor told you to do a job over? |
| Q3 | On the day(s) you went to work with nasal and sinus symptoms, how much of the time did you find it difficult to concentrate on what you needed to do? |
| Q4 | On the day(s) you went to work with nasal and sinus symptoms, how much of the time did you work more slowly or take longer to complete tasks than usual or expected? |
| Q5 | On the day(s) you went to work with nasal and sinus symptoms, how much of the time were you very tired, fell asleep at work or just felt too exhausted to do your work? |

Table S2. Comparison of subjects included and excluded from study (at 16-month follow up)

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Means (95% confidence intervals)a** | | |
| **Selected variables** | **Not in study (n = 2198)** | **In study (n = 2402)** | **p-value** |
| Age (in years) | 65.4 (64.8 – 65.9) | 50.6 (50.1 – 51.1) | **< 0.001** |
| Body mass index (BMI; kg/m2) | 30.1 (29.9 – 30.4) | 30.0 (29.7 – 30.3) | 0.47 |
| Charlson comorbidity index | 2.18 (2.11 – 2.25) | 1.55 (1.49 – 1.60) | **< 0.001** |
|  | **Column Percentages (95% confidence intervals)** | | |
| Sex (female), n = 2854 | 61.8 (59.8 – 63.8) | 62.3 (60.3 – 64.2) | 0.73 |
| Race/ethnicity (non-white), n = 314 | 7.14 (6.07 – 8.22) | 6.53 (5.55 – 7.52) | 0.42 |
| Medical Assistance (ever received)b, n = 354 | 9.87 (8.63 – 11.1) | 5.70 (4.78 – 6.63) | **< 0.001** |
| Abbreviations: CRS = chronic rhinosinusitis; EHR = electronic health record; CRSs = symptoms that meet European Position Paper on Rhinosinusitis definition for CRS symptoms; LPT= lost productive time; NSS = nasal and sinus symptoms  a P-values based on F-ratios  b Medical Assistance is determined from the EHR and is a proxy for family socioeconomic status | | | |

Table S3. Effect estimates for unweighted, truncated weighted, and fully weighted versions of model 3

|  |  |  |  |
| --- | --- | --- | --- |
| **Covariates** | **Exponentiated β-coefficientsa (95% confidence interval)** | | |
| **Unweighted** | **Truncated** | **Full** |
| Pain & pressure FSb  Linear term  Squared termc  Cubic termc | 3.03 (2.39 – 3.84)\*\*\* 0.51 (0.38 – 0.67)\*\*\* 1.16 (1.06 – 1.26)\*\* | 3.31 (2.37 – 4.61)\*\*\* 0.48 (0.32 – 0.73)\*\*\* 1.15 (1.02 – 1.31)\* | 2.49 (1.54 – 4.03)\*\*\* 0.66 (0.34 – 1.27) 1.05 (0.86 – 1.28) |
| Blockage & discharge FS | 1.12 (0.97 – 1.28) | 1.21 (1.02 – 1.43)\* | 1.20 (0.97 – 1.49) |
| Asthma & constitutional FS | 1.24 (1.12 – 1.38)\*\*\* | 1.30 (1.14 – 1.48)\*\*\* | 1.34 (1.15 – 1.55)\*\*\* |
| Smell loss FS | 1.02 (0.93 -1.12) | 0.90 (0.78 – 1.04) | 0.90 (0.75 – 1.07) |
| Ear & eye FS | 1.09 (0.97 – 1.23) | 1.05 (0.89 – 1.24) | 1.12 (0.89 – 1.41) |
| Migraine status (Ref: no) | 1.22 (1.01 – 1.47)\* | 1.24 (0.94 – 1.64) | 1.48 (1.03 – 2.11)\* |
| Physician diagnosed hay fever (Ref: no) | 1.08 (0.89 – 1.32) | 1.30 (1.00 – 1.70)\* | 1.53 (1.07 – 2.19)\* |
| Physician diagnosed asthma (Ref: no) | 0.82 (0.64 – 1.07) | 1.20 (0.88 – 1.63) | 1.13 (0.78 – 1.65) |
| Abbreviations: CRS = chronic rhinosinusitis; EHR = electronic health record; CRSs = symptoms that meet European Position Paper on Rhinosinusitis definition for CRS symptoms; FS = factor score; LPT= lost productive time; NSS = nasal and sinus symptoms  a Estimates derived using survey weighted methods; outcome is a proportion represented by total LPT as the numerator and average total hours worked in a two-week period as the denominator; all models additionally adjusted for: age (centered; scaled by five years), sex, race/ethnicity, Medical Assistance, body mass index (centered), Charlson comorbidity index (centered), smoking status, and education  b Factor scores were standardized (*z*-transformed) with units of SDs; entered model as continuous variables  c Allowed for non-linearity in association | | | |

Table S4. Effect estimates for model 3 which included CRSs status

|  |  |
| --- | --- |
| **Covariates** | **Exponentiated β-coefficientsa (95% confidence interval)** |
| **Model 3** |
| Pain & pressure FSb  Linear term  Squared termc  Cubic termc | 3.42 (2.48 – 4.72)\*\*\*  0.46 (0.31 – 0.70)\*\*\*  1.16 (1.02 – 1.31)\* |
| Blockage & discharge FS | 1.19 (0.98 – 1.45) |
| Asthma & constitutional FS | 1.29 (1.14 – 1.47)\*\*\* |
| Smell loss FS | 0.90 (0.78 – 1.04) |
| Ear & eye FS | 1.05 (0.89 – 1.23) |
| Migraine status (Ref: no) | 1.25 (0.94 – 1.67) |
| Physician diagnosed hay fever (Ref: no) | 1.30 (1.00 – 1.69) |
| Physician diagnosed asthma (Ref: no) | 1.22 (0.90 – 1.65) |
| CRSS status (Ref: never)d  Past  Current | 0.82 (0.58 – 1.16) 1.05 (0.67 – 1.64) |
| p-value: < 0.001\*\*\*, 0.01\*\*, < 0.05\*  Abbreviations: CRS = chronic rhinosinusitis; EHR = electronic health record; CRSs = symptoms that meet European Position Paper on Rhinosinusitis definition for CRS symptoms; FS = factor score; LPT= lost productive time; NSS = nasal and sinus symptoms  a Estimates derived using survey weighted methods; outcome is a proportion represented by total LPT as the numerator and average total hours worked in a two-week period as the denominator; all models additionally adjusted for: age (centered; scaled by five years), sex, race/ethnicity, Medical Assistance, body mass index (centered), Charlson comorbidity index (centered), smoking status, and education  b Factor scores were standardized (*z*-transformed) with units of SDs; entered model as continuous variables  c Allowed for non-linearity in association  d CRS status determined using self-reported symptoms relevant to CRSs at all observed time-points; never CRS = never met CRSs criteria over follow-up; past CRS = met CRSs criteria at some point in lifetime or over follow-up, but did not meet criteria at time of 16-month follow-up; current CRS = met CRSs criteria at time of 16-month follow-up | |



Figure S1. Average standardized factor scores from weighted analysis, overall and by CRSS status and morbidity strata