

Characterization of self-reported pollen food syndrome (PFS) in birch and oak allergic subjects exposed to oak pollen in an Environmental Exposure Chamber (EEC) in Canada

Charvi Bhatt, Basma Ismail, Brian Sonne Stage,

Peter Couroux, Anne Marie Salapatek

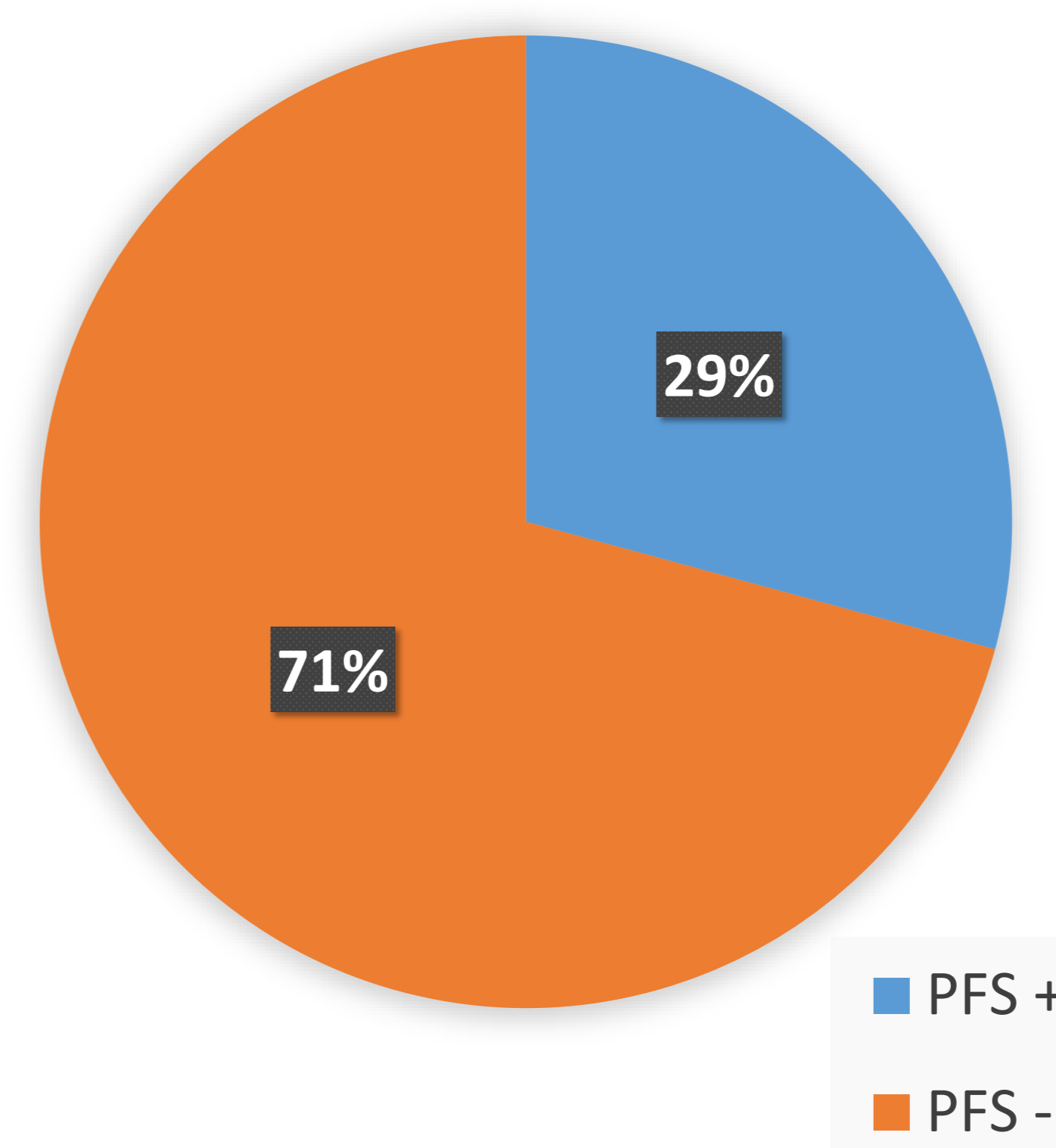


Introduction

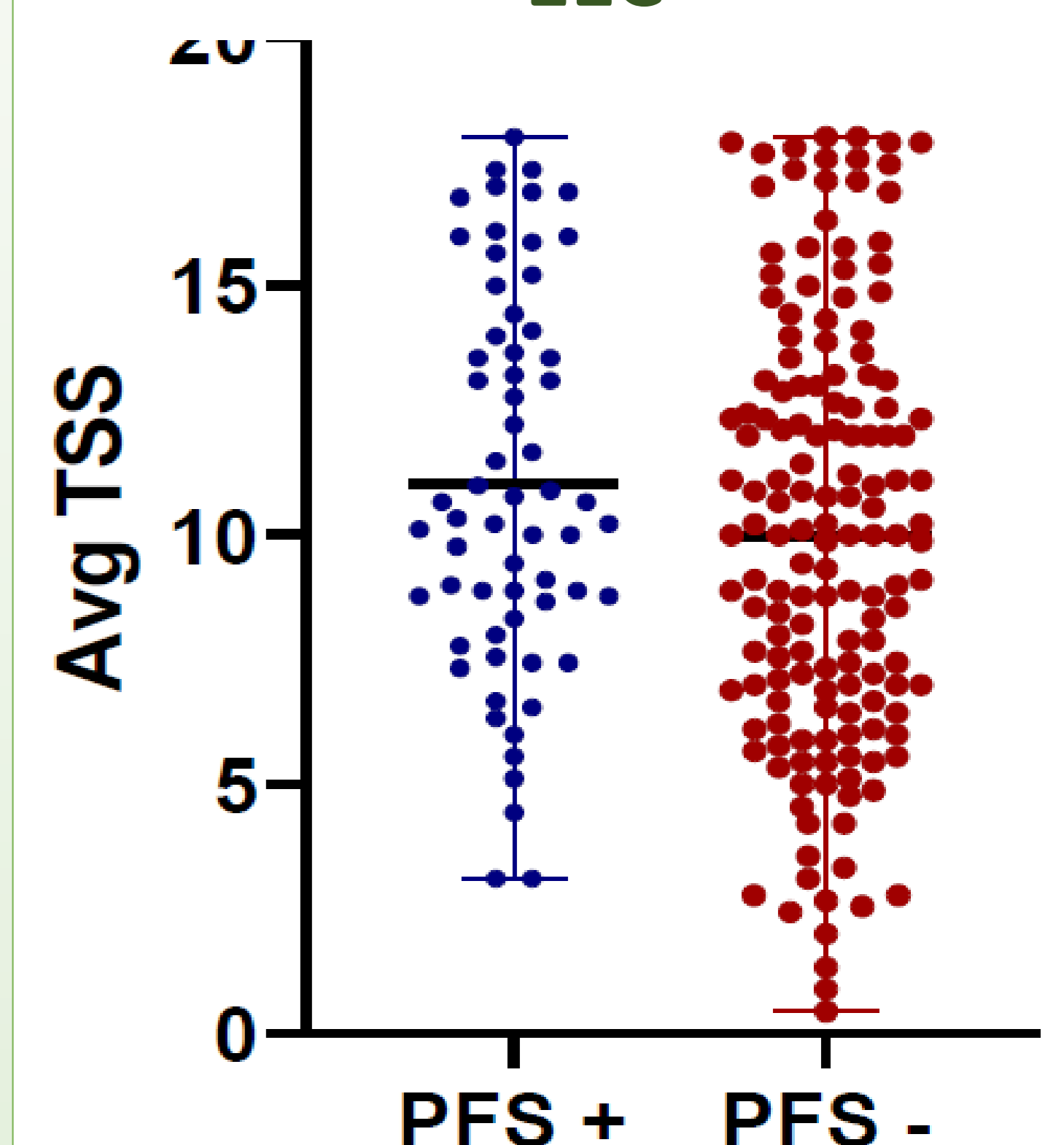
Pollen Food Syndrome (PFS) is an allergic reaction to fruits, vegetables and/or nuts that is commonly associated with pollen (i.e. oak and birch) allergy due to food and pollen similar allergen protein homology.

There is little data on PFS comorbidity with tree allergy in Canada. This post-hoc analyses examined the frequency of self-reported PFS, PFS phenotypes and Total Symptom Scores (TSS) reported by oak and birch allergic patients exposed to oak pollen in an Environmental Exposure Chamber (EEC).

PFS % in Total Study Subjects



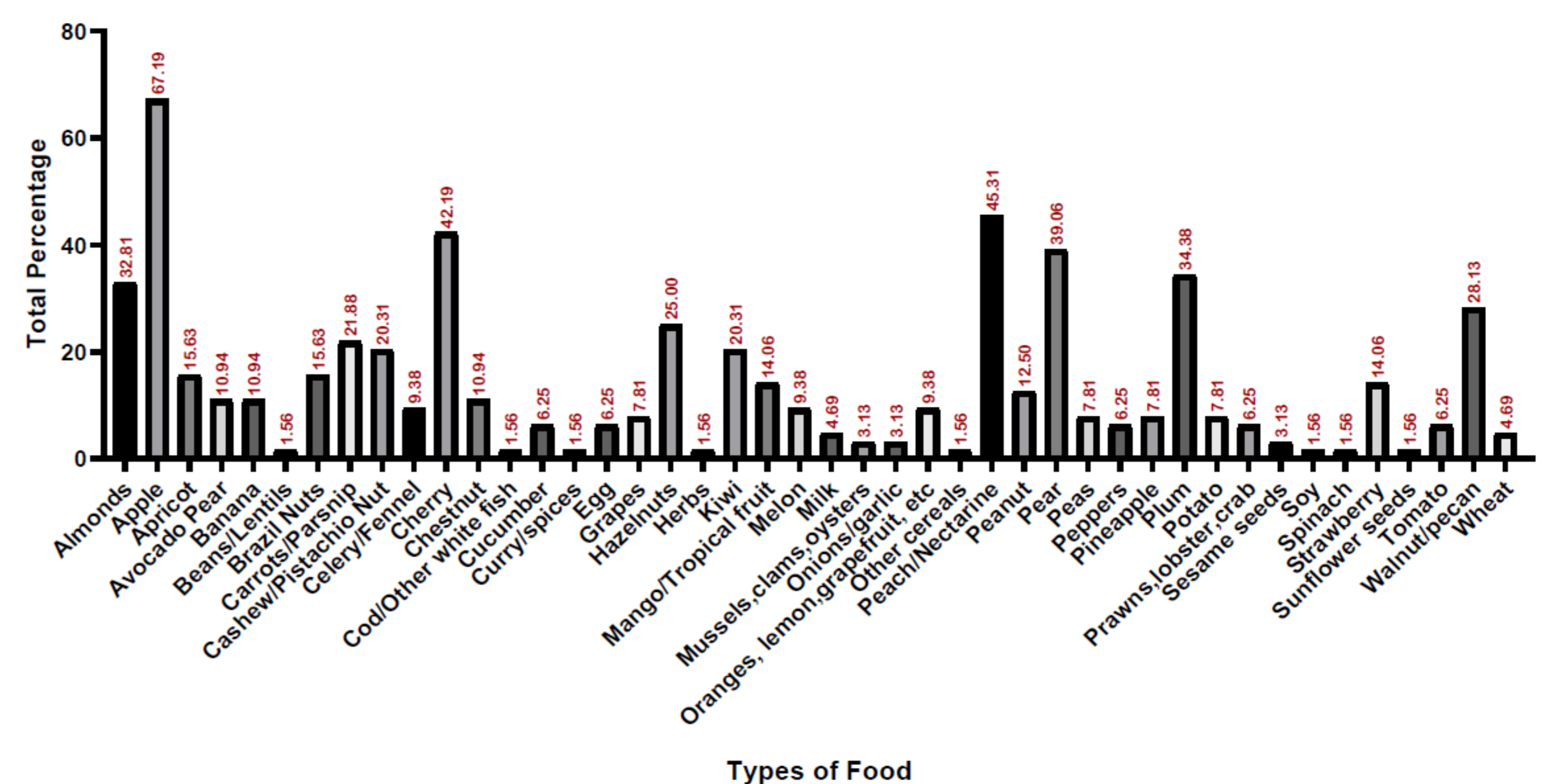
Baseline Oak TSS in the EEC



Methods

- A total of 219 subjects with a history of birch allergy specific IgE and SPT positive were studied during out-of-pollen allergy season.
- Subjects were exposed in the EEC to oak pollen (3500±500 pollen grains/m³) for 6 hours and their TSS was recorded every 30 minutes. The subjects also reported in a questionnaire their allergic reaction responses to specific types of food. Their PFS status was determined using a PI algorithm adapted from Skypala et al., 2011. (1)
- PFS data was phenotyped with descriptive statistics and the TSS recorded in the EEC was compared between PFS-positive and PFS-negative subjects using unpaired t-tests.

Percentage of Total PFS+ Subjects with Specific Food Allergy



Results

- Out of the total 219 subjects studied, 29% (64) were PFS-positive and 71% (155) were PFS-negative.
- The highest food allergy reported in PFS-positive subjects was Fruits/Vegetables (84.3%), followed by Nuts (53.1%), then Potatoes/ Root Vegetables (10.9%) =Milk/Eggs/Chicken (10.9%), Fish/Shellfish (7.8%), Beansprouts/Salad Leaves/Herbs (4.7%) =Wheat/ Other Cereals (4.7%), and Beans/Lentils/Chickpeas/Legumes (3.1%) = Other Food (3.1%).
- Average TSS reported by PFS-positive subjects was not significantly different from PFS-negative subjects (11.05 vs 9.97 respectively; p=0.0852).

Conclusions

PFS comorbidity with birch and oak allergy existed in about one third of the subjects studied, however there is no statistically significant difference between PFS-positive subjects and PFS-negative subjects with regards to the severity of allergy symptoms evoked by oak pollen exposure in an EEC.

References

- Skypala IJ, Calderon MA, Leeds AR, Emery P, Till SJ, Durham SR. Development and validation of a structured questionnaire for the diagnosis of Oral Allergy Syndrome in subjects with seasonal allergic rhinitis during the UK birch pollen season.