

## CORRESPONDENCE

# Sex differences in respiratory symptoms

To the Editor:

We read with interest the paper by LARSSON *et al.* [1] in which they reported in a large population-based sample of nonsmokers that respiratory symptoms were related to environmental tobacco smoke (ETS). They gave special consideration to respiratory symptoms triggered by a variety of lower airway irritants and they showed for these symptoms that the relation was stronger in females than in males. Although, such symptoms are particularly frequent among asthmatics [2], they did not perform an analysis according to asthma.

As the epidemiological study on the genetics and environment of asthma (EGEA) includes a large number of adult asthmatics, as well as controls [3], we analysed whether sex differences were observed for symptoms triggered by various stimuli in 366 population-based (mainly electoral roll) controls and in 213 asthmatics cases. Triggers were exposure to hay/flowers, pets, dust, cold air, exercise and ETS. Symptoms were as in the study by LARSON *et al.* [1] respiratory symptoms (fits of coughing, shortness of breath and/or wheezing), but also nasal symptoms (runny nose and/or sneezes) and ocular symptoms (runny/itchy eyes) [4, 5]. As expected, reports of symptoms triggered by various stimuli were markedly higher in asthmatics than in controls (for example respiratory symptoms triggered by ETS and pets were reported by 57% and 26% of the asthmatics and by 19% and 2% of the controls respectively). As in the LARSON *et al.* [1] study, females reported more symptoms than males in population-based controls (even when excluding asthmatics). Furthermore, considering asthmatic cases, a similar pattern was observed with females reporting in general more symptoms to any trigger than males. For respiratory symptoms, prevalences were generally higher in females than in males (fig. 1). Age-adjusted odds ratios (ORs) were statistically significant for symptoms triggered by ETS and by exercise (age-adjusted OR (95% confidence interval (CI)) 2.4 (1.3–4.4) and 2.7 (1.3–5.6) respectively). The prevalence of nasal symptoms triggered by stimuli varied between 7% for exercise to 54% for dust in asthmatics. Females also reported more nasal symptoms

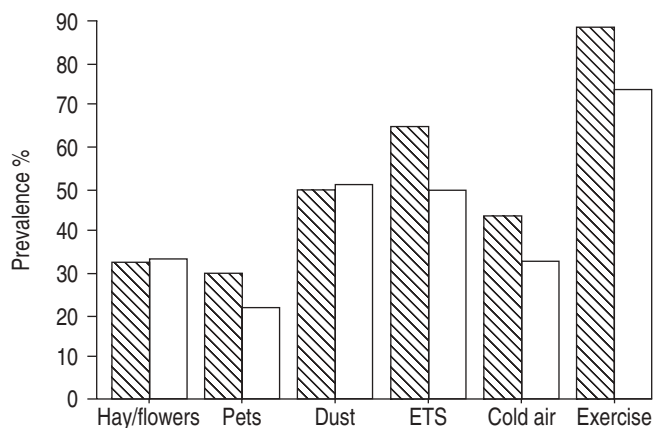


Fig. 1. – Sex differences in trigger-induced respiratory symptoms. ETS: environmental tobacco smoke. ▨: females; □: males.

than males for all triggers except hay/flowers, with age-adjusted ORs for ETS, exercise, pets and hay/flowers of 1.9 (0.9–4.0), 1.9 (0.6–5.8), 1.7 (0.9–3.4) and 1.0 (0.5–1.7) respectively.

The analysis by LARSON *et al.* [1] was restricted to non-smokers due to the focus on ETS. Considering sex differences in ETS-triggered respiratory symptoms according to active smoking is also of interest, as active smoking is related to the number of asthma attacks, an aspect of the severity of asthma [3]. Indeed, active smoking modified the association of sex with ETS-triggered symptoms. In nonsmokers and exsmokers, females reported more symptoms (age adjusted OR (95% CI) 2.5 (1.0–5.8) and 2.6 (0.8–8.1)), whereas no sex difference was observed in smokers (0.9 (0.2–5.4)).

Our results confirm and extend the results of LARSON *et al.* [1]. The perception of symptoms triggered by various stimuli is recognised as an important aspect of quality of life, but little attention is generally paid to sex differences for these symptoms [2] or in quality of life scales. The clinical pattern of diseases may differ by sex, due in part to sex differences regarding perception or reporting symptoms [6] and the present results suggest that the perception of symptoms in relation to specific triggers should be considered in clinical settings. Our observation as well as those of LARSON *et al.* [1] further suggest that analyses of epidemiological studies should be performed according to sex and that more research should be conducted to understand the reasons for the differences observed.

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