Prevalence of non-food allergies among British Columbia residents from different countries of origin

Dear Editor:

Re: Yao J, Sbihi H. Prevalence of non-food allergies among non-immigrants, long-time immigrants and recent immigrants in Canada. *Can J Public Health* 2016;107(4-5):e461-e466. PMID: 28026714. doi: 10.17269/CJPH.107.5614

We read with interest the above article published by Yao and Sbihi in the *Canadian Journal of Public Health*. The authors reported the prevalence of non-food (mainly respiratory) allergies in Canada to be lower among immigrants and rightly attributed this to environmental causes. However, as they discussed in their article, the extent and direction of this association remains controversial.

When investigating allergies among Canadian immigrants, a distinction should be made between European immigrants and African and Asian immigrants. The rates of allergies among people living in Europe and North America are higher than among those living in Asia and Africa, which has previously been attributed to genetics and the environment.¹ As well, many Canadian immigrants originate from Europe: based on the 2006 Census, the place of birth for most immigrants to Canada was the United Kingdom, followed by China and India. Many others originated from Italy, USA, Germany and Poland.²

In addition, a distinction should be made between diagnosed and perceived allergies. Immigrants may perceive diseases differently due to a lack of knowledge about or access to health care.³ This may be especially true for allergies, as they manifest in a wide range of symptoms. Lower rates of allergy among immigrants may be attributed to under-reporting of perceived allergies and/or under-diagnosis.

We recently performed a cross-sectional study (UBC – H16-00826) to determine the prevalence of allergies among a sample of British Columbia (BC) residents (*n* = 7995). We compared the prevalence of perceived allergies (self-reported) and diagnosed allergies (self-reported to have been diagnosed by a physician) between Caucasians (North Americans of European descent) and non-Caucasians, as well as immigrants and non-immigrants.

Figure 1. The proportion and odds ratios of perceived and diagnosed non-food allergies among Caucasians and non-Caucasians (*n* = 7995)

We found that the proportion (95% CI) of perceived non-food allergies (respiratory allergies categorized as hay fever/seasonal allergies/dust allergies and animal fur/dander allergies) was significantly higher among Caucasians (4.3%, 95% CI: 3.7–5.0) (*n* = 3697) compared to non-Caucasians (2.1%, 95% CI: 1.7–2.6) (*n* = 4298). A similar, but stronger pattern was found for diagnosed non-food allergies among Caucasians (1.8%, 95% CI: 1.4–2.3) and non-Caucasians (0.3%, 95% CI: 0.2–0.5). The odds ratios of diagnosed if perceived for non-food allergies were 41.5% (34, 49) for Caucasians and 14.4% (8.6, 23) for non-Caucasians (see Figure 1).

A separate analysis for immigrants irrespective of whether or not they were Caucasian led to a similar pattern (data not reported).

While we agree with Yao and Sbihi’s findings that the rate of diagnosed allergies among immigrants of Asian and African origin is lower than that among non-immigrants, we would like to add that this may depend on whether we are investigating perceived or diagnosed allergies. The large difference we found for perceived allergies in our study could be the result of non-Caucasians not seeking care from a physician because they perceive allergies as mild. This is also consistent with the concept that an immigrant’s perception of allergy approaches that of a non-immigrant the longer he/she resides in Canada.

In addition, immigrants of European descent (Caucasian in our analysis) should be evaluated separately from other immigrants.

Angela Randall, MPH,^{1,2} Jane A. Buxton, MD,² Reza Afshari, MD, MPH, PhD^{1,3}

- 1. Environmental Health Services, BC Centre for Disease Control, Vancouver, BC
- 2. School of Population and Public Health, University of British Columbia, Vancouver, BC
- 3. Occupational and Environmental Division, School of Population and Public Health, University of British Columbia, Vancouver, BC

Correspondence: Dr. Reza Afshari, Reza.Afshari@bccdc.ca
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In response to Randall et al. letter

We thank Randall et al. for their interest in our paper (Yao and Sbihi, 2016). With data from British Columbia, they provided evidence for two important points that were highlighted in our paper’s discussion: 1) While our analysis focused on all immigrants, irrespective of country of origin, additional information on origin may be important to further investigate mechanisms supporting our observations, and 2) the approaches used to define the outcome of allergy may influence the results.

While the letter by Randall et al. highlights differences in prevalence of non-food allergies among people from different

countries of origin, we propose that this may reflect differences in duration of residence in Canada, because historically a much larger proportion of European immigrants came to Canada as opposed to more non-European immigrants in recent years.

Finally, we used self-reported physician-diagnosed non-food allergies as our outcome, thus the question of case ascertainment is tangential to our main research question. It would have been helpful to have more details on the survey and analyses provided by Randall et al., so that readers can interpret their results or

compare them with those presented in our paper, which included detailed information on methodology. However, we agree with Randall et al. that distinguishing between perceived and diagnosed allergies may influence the observed trends.

Jiayun Yao, MSc, Hind Sbihi, PhD

School of Population and Public Health, University of British Columbia, Vancouver, BC