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Letters to the Editor

Obesity is a risk factor for asthma in women but not in men among elder people in China

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Obesity and asthma are important health issues and a positive association between them has been reported [1–3]. However, the reports were mainly based on school-age children and there are few reports to identify this associate among elderly people, especially Chinese elderly people. We aimed to assess the consistency of the association among Chinese people aged 60 and over through a cross-sectional study of 6283 participants.

Data for this study came from 2013 follow-up survey of the China Health and Retirement Longitudinal Study (CHARLS) [4], run by the National School for Development (China Center for Economic Research). Samples of households with members aged 45 and above were chosen through multistage probability sampling from 30 provinces in China, which included a mix of urban and rural settings and a wide variety of levels of economic development. In this study, we limited our samples to the respondents who were over 60 and completed physical examination. Self-reported data on asthma was obtained by the question, ‘have you been diagnosed with asthma by a doctor?’.

Asthma prevalence was 6.1% in male and 4.3% in female. Of the remaining 6283 respondents, the mean age was 68.21 ± 6.70 and 3158 (50.3%) respondents were male. 19.0% of the respondents received at least junior high school education and 77.9% of them living in rural area. The proportions of respondents living in eastern, middle, western region of China were 36.8, 36.8 and 26.5%, respectively. 68.2% of the respondents never drank alcohol, while 24.7% drank more once a month. As for smoking, 54.2% of the respondents never smoked and 8.5% of them quit smoking. The proportion of normal weight was the largest, at 61.5%, followed by that of overweight at 25.6%. 8.2% of respondents were underweight and 4.7% of them were obesity.

The association between obesity and asthma was examined using logistic regression analyses. Asthma or not (1 = asthma, 0 = without asthma) was dependent variable; body mass index (BMI) was used to assess obesity and was included as independent variable. In addition, age, gender, education level, community type and geographic location were also included as independent variables. As shown in Table 1, women with BMI over 30 kg/m² was 2.186 times more likely to suffer from asthma ($P < 0.05$), while there was no statistically significant difference among men. Except for BMI, living in western China where the economic development was relatively less developed and a smoking history could increase the possibility of asthma in women; drinking alcohol more than once a month and smoking might increase that of men. Both men and women in their 70s had higher possibility of asthma.

In our study, the prevalence of asthma was relatively high in both men and women compared with that of Canadian people between 20 and 64 years old (1.6% of men and 2.9% of women), but we concluded the same conclusion that obesity was a risk factor for asthma in women but not in men [1]. However, further study is needed to have a better understanding of the mechanisms that determine the association, so that we are able to guide better management in asthma patients.

Conflict of interest statement

We declare that we have no financial and personal relationships with other people or organizations that can inappropriately influence our work, there is no professional or other personal interest of any nature or kind in any product, service and/or company that could be construed as influencing the position presented in the manuscript entitled “Obesity is a risk factor for asthma in women but not in men among elder people in China”.

Table 1
Association between obesity and asthma in male and female.

	Male (n = 3158)		Female (n = 3152)	
	OR(95% CI)	P value	OR(95% CI)	P value
Age				
60–69	1.000		1.000	
70–79	1.811(1.325–2.477)	0.000	1.513(1.038–2.205)	0.031
80–	1.409(0.791–2.508)	0.244	0.883(0.415–1.876)	0.745
Education				
Primary school and under	1.000		1.000	
Junior high school and above	0.814(0.557–1.189)	0.286	0.690(0.328–1.452)	0.328
Community type				
Village	1.000		1.000	
City	1.052(0.728–1.521)	0.787	0.883(0.530–1.472)	0.634
Geographic location				
East	1.000		1.000	
Middle	1.329(0.929–1.902)	0.119	1.473(0.945–2.294)	0.087
West	1.416(0.968–2.071)	0.073	2.050(1.305–3.221)	0.002
Drinking				
No	1.000		1.000	
Less than once a month	0.743(0.385–1.436)	0.377	0.128(0.016–1.002)	0.050
More than once a month	1.378(1.002–1.896)	0.049	0.986(0.531–1.832)	0.965
Smoking				
No	1.000		1.000	
Yes	0.592(0.382–0.918)	0.019	1.047(0.551–1.989)	0.888
Quit	1.321(0.900–1.937)	0.155	3.891(1.633–9.272)	0.002
BMI (kg/m ²)				
18.5–24.9	1.000		1.000	
<18.5	1.029(0.620–1.708)	0.912	1.612(0.896–2.902)	0.111
25.0–29.9	1.261(0.874–1.820)	0.215	1.111(0.727–1.697)	0.626
≥30.0	1.318(0.589–2.950)	0.502	2.186(1.209–3.952)	0.010

OR = odds ratio; CI = confidence interval.

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