Supplementary Material: tables

Asthma is associated with frailty among community-dwelling adults – the GAZEL cohort.

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Table A1: Prevalence of frail (F), pre-frail (P-F) and robust (R) among participants with current asthma (CA) and without current asthma (NCA) according to BMI category in 2015

<table>
<thead>
<tr>
<th>Asthma definition</th>
<th>Normal BMI</th>
<th></th>
<th>Overweight BMI</th>
<th></th>
<th>Obese BMI</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All</td>
<td>R</td>
<td>P-F</td>
<td>F</td>
<td>All</td>
<td>R</td>
</tr>
<tr>
<td>Current asthma in 2015</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CA</td>
<td>131</td>
<td>72</td>
<td>44 (33.6%)</td>
<td>15 (11.5%)</td>
<td>143</td>
<td>72 (50.4%)</td>
</tr>
<tr>
<td>NCA</td>
<td>4,605</td>
<td>3,108</td>
<td>1,316 (28.6%)</td>
<td>181 (3.9%)</td>
<td>5,203</td>
<td>3,163 (60.8%)</td>
</tr>
<tr>
<td>Current asthma in 2002</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CA</td>
<td>458</td>
<td>260</td>
<td>163 (36.6%)</td>
<td>35 (7.6%)</td>
<td>621</td>
<td>298 (48.0%)</td>
</tr>
<tr>
<td>NCA</td>
<td>2,632</td>
<td>1,832</td>
<td>701 (26.6%)</td>
<td>99 (3.8%)</td>
<td>2,844</td>
<td>1,788 (62.9%)</td>
</tr>
<tr>
<td>Constant report of current asthma from 1990 to 2015</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CA</td>
<td>33</td>
<td>14</td>
<td>14 (42.4%)</td>
<td>5 (15.15%)</td>
<td>41</td>
<td>24 (58.5%)</td>
</tr>
<tr>
<td>NCA</td>
<td>2,500</td>
<td>1,739</td>
<td>671 (26.8%)</td>
<td>90 (3.6%)</td>
<td>2,712</td>
<td>1,704 (62.8%)</td>
</tr>
<tr>
<td>At least one report between 1990 and 2015</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CA</td>
<td>410</td>
<td>253</td>
<td>129 (34.5%)</td>
<td>28 (6.8%)</td>
<td>446</td>
<td>240 (53.8%)</td>
</tr>
<tr>
<td>NCA</td>
<td>4,326</td>
<td>2,927</td>
<td>1,231 (28.5%)</td>
<td>168 (3.9%)</td>
<td>4,900</td>
<td>2,995 (61.1%)</td>
</tr>
<tr>
<td>Sensibility</td>
<td>51</td>
<td>26</td>
<td>19 (37.3%)</td>
<td>6 (11.8%)</td>
<td>63</td>
<td>36 (57.1%)</td>
</tr>
<tr>
<td>NCA</td>
<td>4,685</td>
<td>3,154</td>
<td>1,341 (28.6%)</td>
<td>190 (4.1%)</td>
<td>5,283</td>
<td>3,199 (60.8%)</td>
</tr>
</tbody>
</table>

BMI: body mass index; CA: current asthmatic; NCA: non-current asthmatic; R: robust; P-F: pre-frail; F: frail
Table A2: Characteristics of participants according to their report of current asthma in 2002.

<table>
<thead>
<tr>
<th>Characteristics in 2015</th>
<th>Participants without current asthma (n= 6,560)</th>
<th>Participants with current asthma (n= 1,456)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years, mean ± SD</td>
<td>69.9 (± 3.4)</td>
<td>70.0 (± 3.5)</td>
</tr>
<tr>
<td>Women, n (%)</td>
<td>1,583 (24)</td>
<td>398 (27)</td>
</tr>
<tr>
<td>Marital status, N (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Living alone</td>
<td>1,082 (17)</td>
<td>304 (21)</td>
</tr>
<tr>
<td>Education level, n (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; High school</td>
<td>1,256 (19)</td>
<td>274 (19)</td>
</tr>
<tr>
<td>High school</td>
<td>3,691 (57)</td>
<td>861 (60)</td>
</tr>
<tr>
<td>University &amp; other</td>
<td>1,520 (24)</td>
<td>295 (21)</td>
</tr>
<tr>
<td>Body Mass Index, kg/m², mean ± SD</td>
<td>25.9 ± 3.8</td>
<td>27.0 ± 4.4</td>
</tr>
<tr>
<td>Obese, N (%)</td>
<td>807 (12)</td>
<td>304 (21)</td>
</tr>
<tr>
<td>Current tobacco consumption, n (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non smoker</td>
<td>2,515 (44)</td>
<td>476 (38)</td>
</tr>
<tr>
<td>Current smoker</td>
<td>360 (6)</td>
<td>142 (11)</td>
</tr>
<tr>
<td>Former smoker</td>
<td>2,784 (49)</td>
<td>627 (50)</td>
</tr>
<tr>
<td>Frailty, n (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robust</td>
<td>4,117 (63)</td>
<td>681 (47)</td>
</tr>
<tr>
<td>Pre-frail</td>
<td>2,140 (33)</td>
<td>614 (42)</td>
</tr>
<tr>
<td>Frail</td>
<td>303 (5)</td>
<td>161 (11)</td>
</tr>
<tr>
<td>Symptoms reported in 2002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asthma attack in the last 12 months?</td>
<td>0</td>
<td>242 (17)</td>
</tr>
<tr>
<td>Wheezing in the chest, at any moment, in the last 12 months? (Yes)</td>
<td>0</td>
<td>868 (60)</td>
</tr>
<tr>
<td>Woken up with difficulty breathing in the last 12 months?</td>
<td>0</td>
<td>808 (57)</td>
</tr>
<tr>
<td>Woken up with a breathlessness in the last 12 months?</td>
<td>0</td>
<td>176 (13)</td>
</tr>
<tr>
<td>Any asthma medications?</td>
<td>0</td>
<td>300 (21)</td>
</tr>
</tbody>
</table>
Table A3: Characteristics of the participants in 2015 according to frailty status and current asthma 2015 status.

<table>
<thead>
<tr>
<th></th>
<th>Robust</th>
<th>Pre-frail</th>
<th>Frail</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non current asthma (N = 7 198)</td>
<td>Current asthma (N = 183)</td>
<td>P-value</td>
</tr>
<tr>
<td><strong>Age, years, mean ± SD</strong></td>
<td>69.7 +/- 3.4</td>
<td>69.9 +/- 3.5</td>
<td>0.49</td>
</tr>
<tr>
<td><strong>Sex, n (%)</strong></td>
<td>1 673 (23)</td>
<td>47 (26)</td>
<td>0.50</td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Marital status, n (%)</strong></td>
<td>1 140 (16)</td>
<td>24 (13)</td>
<td>0.38</td>
</tr>
<tr>
<td>Living alone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Education, n (%)</strong></td>
<td>1 351 (19)</td>
<td>28 (16)</td>
<td>0.99</td>
</tr>
<tr>
<td>&lt; High school</td>
<td>4 096 (58)</td>
<td>105 (58)</td>
<td>2466(61)</td>
</tr>
<tr>
<td>High school</td>
<td>1 643 (23)</td>
<td>47 (26)</td>
<td>744 (18)</td>
</tr>
<tr>
<td>University &amp; other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Body Mass Index, kg/m², mean ± SD</strong></td>
<td>25.5 +/- 3.3</td>
<td>26.0 +/- 3.7</td>
<td>0.10</td>
</tr>
<tr>
<td>Obese (BMI ≥ 30kg/m²), N (%)</td>
<td>604 (9)</td>
<td>31 (18)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td><strong>Current Tobacco consumption, n (%)</strong></td>
<td>2 798 (45)</td>
<td>74 (49)</td>
<td>0.55</td>
</tr>
<tr>
<td>Non smoker</td>
<td>393 (6)</td>
<td>7 (5)</td>
<td>305 (9)</td>
</tr>
<tr>
<td>Current smoker</td>
<td>3 003 (48)</td>
<td>71 (47)</td>
<td>1 693 (49)</td>
</tr>
<tr>
<td>Former smoker</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mood, n (%)</strong></td>
<td>868 (12)</td>
<td>29 (16)</td>
<td>0.15</td>
</tr>
<tr>
<td>Depressed, stressed or anxious</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other chronic diseases, N (%)</strong></td>
<td>469 (7)</td>
<td>12 (7)</td>
<td>1</td>
</tr>
<tr>
<td>Heart diseases</td>
<td>618 (9)</td>
<td>21 (12)</td>
<td>0.22</td>
</tr>
<tr>
<td>Diabetes</td>
<td>2606 (36)</td>
<td>75 (41)</td>
<td>0.21</td>
</tr>
<tr>
<td>Joint pain</td>
<td>859 (12)</td>
<td>28 (16)</td>
<td>0.21</td>
</tr>
</tbody>
</table>

1 p-value of t-test for continuous variables and chi-squared test for categorical variables
Table A4: Association between current asthma and frailty criteria.

<table>
<thead>
<tr>
<th>Asthma definition</th>
<th>OR of exhaustion [95%CI]</th>
<th>OR of weight loss [95%CI]</th>
<th>OR of slowness [95%CI]</th>
<th>OR of weakness [95%CI]</th>
<th>OR of low physical activity [95%CI]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current asthma in 2015</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crude</td>
<td>1.60 [1.52 - 2.07]</td>
<td>1.32 [0.86 - 1.94]</td>
<td>2.23 [1.75 - 2.82]</td>
<td>2.05 [1.49 - 2.76]</td>
<td>1.27 [1.00 - 1.60]</td>
</tr>
<tr>
<td>M2</td>
<td>1.60 [1.17 - 2.14]</td>
<td>1.53 [0.95 - 2.33]</td>
<td>1.94 [1.43 - 2.59]</td>
<td>1.64 [1.10 - 2.38]</td>
<td>1.19 [0.90 - 1.55]</td>
</tr>
<tr>
<td>M3</td>
<td>1.40 [1.00 - 1.90]</td>
<td>1.39 [0.86 - 2.15]</td>
<td>1.84 [1.35 - 2.48]</td>
<td>1.53 [1.01 - 2.25]</td>
<td>1.14 [0.87 - 1.49]</td>
</tr>
<tr>
<td>Current asthma in 2002</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M3</td>
<td>1.63 [1.35 - 1.96]</td>
<td>1.52 [1.17 - 1.97]</td>
<td>1.75 [1.46 - 2.08]</td>
<td>1.53 [1.20 - 1.94]</td>
<td>1.11 [0.95 - 1.30]</td>
</tr>
<tr>
<td>Constant report of current asthma between 1990 and 2015</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crude</td>
<td>1.70 [0.99 - 2.78]</td>
<td>2.22 [1.11 - 4.02]</td>
<td>3.19 [2.04 - 4.87]</td>
<td>2.45 [1.30 - 4.28]</td>
<td>1.48 [0.95 - 2.25]</td>
</tr>
<tr>
<td>M2</td>
<td>1.72 [0.91 - 3.02]</td>
<td>2.66 [1.16 - 5.35]</td>
<td>2.76 [1.58 - 4.69]</td>
<td>1.63 [0.68 - 3.42]</td>
<td>1.36 [0.80 - 2.22]</td>
</tr>
<tr>
<td>M3</td>
<td>1.35 [0.69 - 2.50]</td>
<td>2.40 [1.03 - 4.92]</td>
<td>2.86 [1.60 - 4.95]</td>
<td>1.53 [0.60 - 3.35]</td>
<td>1.31 [0.77 - 2.15]</td>
</tr>
<tr>
<td>At least one report between 1990 and 2005</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M2</td>
<td>1.22 [0.96 - 1.54]</td>
<td>1.63 [1.17 - 2.22]</td>
<td>1.56 [1.24 - 1.96]</td>
<td>1.55 [1.15 - 2.05]</td>
<td>1.01 [0.82 - 1.24]</td>
</tr>
<tr>
<td>M3</td>
<td>1.01 [0.78 – 1.30]</td>
<td>1.51 [1.08 – 2.08]</td>
<td>1.38 [1.09 – 1.75]</td>
<td>1.36 [1.00 – 1.82]</td>
<td>0.96 [0.78 – 1.18]</td>
</tr>
</tbody>
</table>

Results are expressed as OR: odds-ratio; 95%CI: 95 percent confidence interval.

Model 2 (M2): adjusted for sex, age (continuous), body mass index (continuous), education, marital status, tobacco consumption;

Model 3 (M3): further adjustment on diabetes, joint pain, cancer, cardiac diseases and mental status.

Sensibility: Participants who constantly reported current asthma, or only once, in 2015, were considered as having current asthma; otherwise they were considered as not having current asthma.