The generalised additive model using Poisson distribution with log-link function was adopted to construct a core model that regressed the daily numbers of GP visits in each clinic on the time variable (day), daily mean temperature and humidity, a holiday indicator, and the day of the week. Smoothers were used to control for long term seasonal patterns of GP visits. The core models were chosen so that the predicted daily numbers of GP consultation best fitted the observed numbers. The quasi-likelihood method was used to correct for over-dispersion. When significant autocorrelation was detected, it was adjusted by adding autoregressive terms (GP consultations in the previous day, up to three days) to the model. Residual analyses were performed and no uncontrolled trends were observed. After the confounding effects of seasonality, days of the week, and climatic variables have been controlled, daily concentrations of PM$_{10}$, NO$_2$, SO$_2$, and O$_3$ obtained from the monitoring station in/nearest to the district, were then added to each core model to determine the relative risk (RR) of increased risk of consultations for all respiratory illnesses and URTI in particular. Hence, the impact of air pollution on public health extends far beyond the increase in hospital admissions and mortalities.

**Contributors**

TWW had the original study idea, planned the study, wrote the paper and is guarantor of the study. YTW recruited and coordinated the GPs and validated the data. TSY and CMW contributed to the planning of the study. CMW and AHSW gave useful comments. WT analysed the data.

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### Table 1

Combined risk estimates for consultations for upper respiratory tract infections (URTI) and all respiratory diseases and mean daily concentrations of pollutants

<table>
<thead>
<tr>
<th>Pollutants*</th>
<th>Mean (SD) daily concentration (µg/m$^3$)</th>
<th>URTI RR (95% CI)</th>
<th>All respiratory RR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO$_2$</td>
<td>59.50 (21.81)</td>
<td>1.0125 (0.9906 to 1.0349)</td>
<td>1.0342 (0.9938 to 1.0763)</td>
</tr>
<tr>
<td>PM$_{10}$</td>
<td>49.63 (24.84)</td>
<td>1.0301 (1.0154 to 1.0450)</td>
<td>1.0328 (1.0252 to 1.0405)</td>
</tr>
<tr>
<td>O$_3$</td>
<td>27.52 (17.18)</td>
<td>1.0174 (0.9933 to 1.0420)</td>
<td>1.0150 (0.9882 to 1.0426)</td>
</tr>
<tr>
<td>SO$_2$</td>
<td>16.57 (12.68)</td>
<td>0.9923 (0.9487 to 1.0378)</td>
<td>1.0068 (0.9697 to 1.0454)</td>
</tr>
</tbody>
</table>

*NO$_2$, nitrogen dioxide; PM$_{10}$, particulates with an aerodynamic diameter less than 10 µm; O$_3$, ozone; SO$_2$, sulphur dioxide.
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