Supplementary Materials:

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Table S1. Analysis of the associations between MN frequency and PM_{10}, $PM_{2.5}$, benzene,

NO_2, SO_2, CO and O_3 measured in Brescia at various lag time between exposure measure

and biological sampling.

Air pollutants	IRR	95% Cis	p value
PM_{10}_1 day	0.99	0.98-1.0	0.15
PM_{10}_2 day	0.99	0.98-1.0	0.10
PM_{10}_7 day	0.99	0.98-1.0	0.16
PM_{10}_14 day	0.99	0.97-1.0	0.34
PM_{10}_21 day	1.0	0.98-1.02	0.55
Peak PM_{10}_7 day	0.99	0.98-1.0	0.03
$PM_{2.5}$_1 day	0.99	0.98-1.0	0.18
$PM_{2.5}$_2 day	0.99	0.98-1.0	0.13
$PM_{2.5}$_7 day	0.99	0.98-1.0	0.19
$PM_{2.5}$_14 day	0.99	0.98-1.0	0.34
$PM_{2.5}$_21 day	1.0	0.98-1.02	0.55
Peak $PM_{2.5}$_7 day	0.99	0.98-1.0	0.06
Benzene_1 day	0.92	0.74-1.14	0.5
Benzene_2 day	0.85	0.66-1.1	0.2
Benzene_7 day	0.88	0.67-1.16	0.3
Benzene_14 day	0.96	0.71-1.3	0.8
Benzene_21 day	1.14	0.78-1.6	0.4
Peak Benzene_7 day	0.92	0.79-1.1	0.3
NO_2_1 day	0.99	0.98-1.0	0.9
NO_2_2 day	0.99	0.98-1.0	0.5
NO_2_7 day	0.98	0.96-1.0	0.3
NO_2_14 day	0.98	0.95-1.0	0.2
NO_2_21 day	0.99	0.96-1.0	0.6
Peak NO_2_7 day	1.0	0.99-1.0	0.5
SO_2_1 day	0.99	0.95-1.1	0.9
SO_2_2 day	0.98	0.93-1.0	0.6
SO_2_7 day	1.05	0.95-1.15	0.3
SO_2_14 day	1.18	0.93-1.5	0.2
SO_2_21 day	0.98	0.80-1.21	0.8
Peak SO_2_7 day	0.99	0.97-1.0	0.9

CO_1 day	0.73	0.44-1.2	0.2
CO_2 day	0.7	0.42-1.1	0.1
CO_7 day	0.8	0.46-1.3	0.4
CO_14 day	0.91	0.50-1.6	0.7
CO_21 day	1.27	0.54-2.9	0.5
Peak CO_7 day	0.9	0.68-1.15	0.4
O_3_1 day	1.0	0.99-1.02	0.4
O_3_2 day	1.0	0.99-1.03	0.09
O_3_7 day	1.0	0.99-1.04	0.1
O_3_14 day	1.0	0.99-1.05	0.1
O_3_21 day	1.0	0.99-1.1	0.1
Peak O_3_7 day	1.0	0.99-1.01	0.2

All the associations were assessed including season, temperature, child BMI and adherence to Mediterranean diet, exposure to secondhand smoke at home, having Italian parents, having graduated mother and father in the model as potential confounders.

Table S2. Analysis of the associations between DNA damage with comet test and PM_{10}, $PM_{2.5}$, benzene, NO_2, SO_2, CO and O_3 measured in Brescia at various lag time between exposure measure and biological sampling.

Air pollutants	Coeff.	95% Cis	p value
PM_{10}_1 day	-0.0002	-0.002; 0.002	0.80
PM_{10}_2 day	-0.001	-0.004; 0.001	0.25
PM_{10}_7 day	-0.002	-0.006; 0.002	0.30
PM_{10}_14 day	0.0002	-0.006; 0.006	0.95
PM_{10}_21 day	-0.001	-0.009; 0.006	0.73
$PM_{2.5}$_1 day	-0.0006	-0.003; 0.001	0.63
$PM_{2.5}$_2 day	-0.002	-0.005; 0.001	0.27
$PM_{2.5}$_7 day	-0.003	-0.008; 0.002	0.27
$PM_{2.5}$_14 day	-0.0001	-0.007; 0.006	0.97
$PM_{2.5}$_21 day	-0.002	-0.011; 0.007	0.66
Benzene_1 day	-0.030	-0.092; 0.034	0.36
Benzene_2 day	-0.052	-0.137; 0.031	0.22
Benzene_7 day	-0.12	-0.234; -0.185	0.02
Benzene_14 day	-0.004	-0.140; 0.133	0.95
Benzene_21 day	0.076	-0.083; 0.235	0.34
NO_2_1 day	-0.001	-0.005; 0.002	0.40
NO_2_2 day	-0.004	-0.009; 0.0008	0.10
NO_2_7 day	-0.002	-0.008; 0.005	0.62
NO_2_14 day	0.0004	-0.007; 0.008	0.91
NO_2_21 day	0.0006	-0.007; 0.008	0.87
SO_2_1 day	-0.030	-0.048; -0.013	0.001
SO_2_2 day	-0.02	-0.035; -0.004	0.01
SO_2_7 day	-0.03	-0.057; -0.014	0.001
SO_2_14 day	0.047	-0.031; 0.12	0.23
SO_2_21 day	0.06	0.002; 0.12	0.04
CO_1 day	0.029	-0.14; 0.20	0.74
CO_2 day	0.005	-0.19; 0.21	0.95
CO_7 day	0.043	-0.19; 0.28	0.72
CO_14 day	0.040	-0.22; 0.30	0.76
CO_21 day	-0.022	-0.35; 0.31	0.89
O_3_1 day	-0.002	-0.007; 0.003	0.48
O_3_2 day	-0.002	-0.010; 0.006	0.62
O_3_7 day	-0.008	-0.020; 0.004	0.21
O_3_14 day	-0.012	-0.025; 0.0002	0.05
O_3_21 day	-0.014	-0.030; 0.002	0.09

All the associations were assessed including season, child BMI and adherence to Mediterranean diet, exposure to secondhand smoke at home, having Italian parents, having graduated mother and father in the model as potential confounders.

Table S3. Mean (± SD) and peak of concentrations of PM_{10}, $PM_{2.5}$, benzene, NO_2, SO_2, CO and O_3 measured in Brescia during the weeks before the biological sampling, in two winters (data from the local Environmental Protection Agency). All differences in pollutant concentrations and temperature in two seasons are statistically significant ($p<0.001$).

Air pollutants and temperature	Winter season 1 (Mean ± SD)	Winter season 2 (Mean ± SD)
Temperature (°C)	5.3 ± 2.9	3.1 ± 1.1
PM_{10} ($\mu g/m^3$)		
PM_{10}_1 day	41.7 ± 21.2	68.1 ± 25.3
PM_{10}_2 day	38.7 ± 17.3	68.1 ± 21.4
PM_{10}_7 day	41.0 ± 9.0	64.4 ± 16.7
PM_{10}_14 day	41.0 ± 7.5	57.8 ± 12.9
PM_{10}_21 day	41.0 ± 6.2	56.2 ± 8.9
Peak PM_{10}_7 day	61.8 ± 14.7	85.3 ± 19.5

N. of days exceeding the law limits PM_{10}_7 day	2.2 ± 1.8	5.4 ± 2.3
$PM_{2.5}$ ($\mu g/m^3$)		
$PM_{2.5}$_1 day	30.5 ± 17.6	56.2 ± 20.9
$PM_{2.5}$_2 day	28.7 ± 14.8	56.4 ± 18.3
$PM_{2.5}$_7 day	31.1 ± 7.9	52.9 ± 14.3
$PM_{2.5}$_14 day	31.4 ± 6.3	47.5 ± 11.4
$PM_{2.5}$_21 day	30.5 ± 5.2	46.5 ± 7.6
Peak $PM_{2.5}$_7 day	50.7 ± 13.8	72.4 ± 16.6
Benzene ($\mu g/m^3$)		
Benzene_1 day	1.33 ± 0.60	1.85 ± 1.11
Benzene_2 day	1.28 ± 0.57	1.86 ± 0.75
Benzene_7 day	1.38 ± 0.32	2.09 ± 0.71
Benzene_14 day	1.36 ± 0.28	1.80 ± 0.63
Benzene_21 day	1.30 ± 1.18	1.79 ± 0.57
Peak Benzene_7 day	3.10 ± 0.52	5.17 ± 1.41
NO_2 ($\mu g/m^3$)		
NO_2_1 day	54.1 ± 11.9	64.6 ± 13.6
NO_2_2 day	52.6 ± 11.3	65.8 ± 9.7
NO_2_7 day	55.2 ± 10.5	66.9 ± 6.8

NO_2_14 day	55.0 ± 9.7	61.5 ± 5.5
NO_2_21 day	53.3 ± 9.8	60.3 ± 4.4
Peak NO_2_7 day	153.8 ± 30.6	167.8 ± 12.1
SO_2 ($\mu g/m^3$)		
SO_2_1 day	2.8 ± 2.0	6.0 ± 2.7
SO_2_2 day	3.5± 2.5	5.4 ± 2.8
SO_2_7 day	4.21 ± 1.73	4.91 ± 1.60
SO_2_14 day	4.80 ± 0.48	4.07 ± 0.78
SO_2_21 day	4.62 ± 0.51	4.30 ± 0.90
Peak SO_2_7 day	11.1 ± 3.2	17.8 ± 8.5
CO (mg/m^3)		
CO_1 day	0.96 ± 0.20	1.11 ± 0.36
CO_2 day	0.98 ± 0.21	1.16 ± 0.34
CO_7 day	0.97 ± 0.16	1.19 ± 0.35
CO_14 day	0.95 ± 0.16	1.07 ± 0.31
CO_21 day	0.93 ± 0.15	1.05 ± 0.21
Peak CO_7 day	2.3 ± 0.53	2.6 ± 0.61
O_3 ($\mu g/m^3$)		
O_3_1 day	11.2 ± 7.2	10.8 ± 13.0
O_3_2 day	11.8 ± 6.2	7.7 ± 7.3
O_3_7 day	10.3 ± 5.2	6.2 ± 3.4

O$_3$_14 day	11.7 ± 4.8	7.2 ± 3.2
O$_3$_21 day	14.0 ± 3.9	6.7 ± 1.9
Peak O$_3$_7 day	59.9 ± 16.9	40.3 ± 1.51