Supplemental Material

Title:

Effects of *In Utero* and Postnatal Exposure to Second Hand Smoke on Lung Function, by Gender and Asthma Status: the Seven Northeastern Cities (SNEC) Study

Authors

Shu Chen, Li-Wen Hu, Mo Yang, Kuntal Shah, Yismaw Hailegiorgis, Richai Burgens, Michael Vaughn, Jin Huang, Pamela Xaverius, Gunther Paul, Lidia Morawska, Tao Lu, Shao Lin, Shou-Qiang Zhong, Min-Li Kong, Yan-Qi Xie, Yuan-Tao Hao, Xiao-Wen Zeng, Zhengmin Qian, Guang-Hui Dong

Table of Contents

Statistical Analysis

Data was assessed for normality, using the Shapiro-Wilk W-test, and homogeneity, with Bartlett's test for unequal variances, prior to statistical analysis. Mean and standard deviation was calculated for age, and relative frequencies were calculated for all categorical variables. These values were stratified by both gender and asthma status. To determine the association between SHS exposures and dichotomized outcomes, we used contingency tables and χ^2-tests. Two-step regression procedures were used to analyze the associations. Further detail into these procedures can be found in other paper from Peter et al., (1999).

The following is the derivation of the two-step regression equation for continuous outcome variables: A two-stage regression approach was used to address the relationship between PFT measures and SHS exposures. Both stages of the model, in which random errors are assumed to follow a normal distribution, are provided below.

First-stage multiple regression model fit:

$$Y_{ij}=\mu_j+\gamma X_{ij}+e_{ij}$$

In this equation, Y is the PFT outcome measure, subscript *j* identifies the district, subscript *i* identifies the participant, X describes personal variables that will be controlled for, and *u* is the mean PFT measure, and *e* accounts for random errors at the individual level.

Second-stage "ecologic" model of adjusted community means:

$$\mu_j =\alpha+\beta Z_j+e_j$$

In this equation, Z is the type of SHS exposure, and β is the slope, or coefficient on the relationship between community mean PFT and SHS exposure. Using the Kolmogorov D-statistic, we found that distributions of residuals from the first stage of normality were bell-shaped and passed the test of normality when stratified by gender, but did not pass the test for all subjects combined. To support these findings, log-transforms for each PFT outcome showed similar results. The rejection of the null hypothesis for normality is a common result when the sample size is large because the power to detect slight deviations from normality is high. There was no strong evidence for the need of a transformation, so all analyses were run using raw PFT values.

The following is the derivation of the two-step regression equation for dichotomous outcome variables: A two-level binary logistic model was used to address the relationship between SHS and lung function, with study subjects as units at the primary level and geographical districts at the secondary level. Both logit equations, in which random errors assumed to follow a normal distribution with a mean of zero and constant variance, are provided below. A single regression combining both models is also provided.

Primary-level logit equation of the prevalence of deficits in lungs with k covariates (X_1 ....X_k):

$$\text{logit}\,[\text{Probability}(Y_{ij})] = \alpha_j + \beta_1 X_{1ij} + \ldots. + \beta_k X_{1ij} + e_{ij}$$

In this equation, Y is the PFT outcome measure, subscript *j* identifies the district, subscript *i* identifies the participant, a_j are the intercepts at the district level (assumed to vary across districts), $\beta_1 \ldots \beta_k$ are the regression coefficients of the covariates, and *e* accounts for random errors at the individual level.

Secondary-level regression equation to predict prevalence in a district by SHS exposure:

$$\alpha_j = \alpha + \gamma_1 Z_j + u_j$$

In this equation, Z_j is SHS exposure and u_j are random errors at the district level that characterize the variation between districts and are independent from e_{ij}. We assume that α, $\beta_1,\ldots,\beta_k$, and γ_1 do not vary across and are considered to be fixed effects that apply to all districts, explaining why j isn't used to identify districts.

Combined regression equation:

$$\text{logit}[P(Y_{ij})]=(\alpha+\gamma_1 Z_j + \beta_1 X_{1ij} + \ldots + \beta_k X_{kij}) + (u_j + e_{ij})$$

In this equation, the parentheses are separated by whether they are fixed (first parenthesis) or random (second parenthesis) aspects of the overall regression model.

Statistical analyses were conducted in SAS 9.4 (SAS Institute Inc., Cary, NC, USA), specifically with the use of the GLIMMIX model and a two-sided test at α-level=0.05.

References:

Peters JM, Avol E, Gauderman WJ, Linn WS, Navidi W, London SJ, Margolis H, Rappaport E, Vora H, Gong H Jr, Thomas DC: A study of twelve Southern California communities with differing levels and types of air pollution. II. Effects on pulmonary function. Am J Respir Crit Care Med 1999; 159: 768-775.

Table S1 Adjusted estimated absolute for the prevalence of deficits in lung function from second hand smoke exposure.

SHS Exposure	Model 1	Model 2	Indirect Effect*
FVC <85% predicted			
SHS (*in utero*)	-0.0046	-0.0137	-0.0091 (66.4%)
Smoking during pregnancy	-1.1941	-1.2272	-0.0331 (2.7%)
SHS in first 2 years	-0.2254	-0.2329	-0.0075 (3.2%)
FEV1 <85% predicted			
SHS (*in utero*)	0.0333	0.0212	-0.0121 (57.2%)
Smoking during pregnancy	-0.7214	-0.7810	-0.0596 (7.6%)
SHS in first 2 years	-0.1668	-0.1770	-0.0102 (5.8%)
PEF <75% predicted			
SHS (*in utero*)	-0.1008	-0.1063	-0.0055 (5.2%)
Smoking during pregnancy	-0.3148	-0.3457	-0.0309 (8.9%)
SHS in first 2 years	-0.0125	-0.0185	-0.0060 (32.4%)
MMEF <75% predicted			
SHS (*in utero*)	-0.2574	-0.2791	-0.0217 (7.8%)
Smoking during pregnancy	-0.2586	-0.3664	-0.1078 (29.4%)
SHS in first 2 years	-0.1336	-0.1529	-0.0193 (12.6%)

Model 1: Adjusted for age, gender, body mass index, breastfeeding, parental education, home income, home coal use, study district.

Model 2: Adjusted for age, gender, body mass index, breastfeeding, parental education, home income, home coal use, **asthma**, study district.

*(%) was calculated by the below equation: $(B_{Model2}-B_{Model1})\times 100/B_{Model2}$

Table S2 Adjusted estimated absolute for the changes of Pulmonary Function Test (PFT) on SHS exposure.

SHS Exposure	Model 1	Model 2	Indirect Effect*
FVC (mL)			
SHS (*in utero*)	-27.0206	-27.7461	-0.7255 (2.6%)
Smoking during pregnancy	-142.8100	-145.7200	-2.9100 (2.0%)
SHS in first 2 years	-40.3095	-40.9098	-0.6003 (1.5%)
FEV1 (mL)			
SHS (*in utero*)	-44.0615	-46.4882	-2.4267 (5.2%)
Smoking during pregnancy	-91.2786	-101.4500	-10.1714 (10.0%)
SHS in first 2 years	-47.7701	-49.8676	-2.0975 (4.2%)
PEF (mL/s)			
SHS (*in utero*)	-61.3638	-67.4397	-6.0759 (9.0%)
Smoking during pregnancy	-67.1568	-92.4172	-25.2604 (27.3%)
SHS in first 2 years	-57.7072	-62.9744	-5.2672 (8.4%)
MMEF (mL/s)			
SHS (*in utero*)	-110.1600	-117.2600	-7.1000 (6.1%)
Smoking during pregnancy	-5.5628	-24.7060	-19.1432 (77.5%)
SHS in first 2 years	-81.3629	-87.5877	-6.2248 (7.1%)

Model 1: Adjusted for age, gender, body mass index, breastfeeding, parental education, home income, home coal use, study district.

Model 2: Adjusted for age, gender, body mass index, breastfeeding, parental education, home income, home coal use, **asthma**, study district.

*(%) was calculated by the below equation: $(B_{Model2}-B_{Model1})\times 100/B_{Model2}$

Table S3. Adjusted Odds Ratios (aOR) and 95% CIs for the prevalence of decreased lung function from second hand smoke exposure, by breastfeeding and bodyweight status*.

SHS exposure	Breastfeeding		Overweight	
	No	Yes	No	Yes
	aOR (95%CI)	aOR (95%CI)	aOR(95% CI)	aOR(95% CI)
FVC <85% predicted				
SHS (*in utero*)	1.10 (0.80-1.52)	0.97 (0.77-1.23)	1.01 (0.79-1.29)	1.03 (0.75-1.41)
Smoking during pregnancy	4.28 (1.49-12.33)	3.10 (1.51-6.32)	3.84 (1.95-7.57)	2.45 (0.75-8.00)
SHS in first 2 years	1.64 (1.23-2.20)	1.09 (0.87-1.37)	1.37 (1.09-1.71)	1.12 (0.83-1.51)
Current SHS exposure‡	1.67 (1.28-2.17)	1.50 (1.24-1.81)	1.36 (1.12-1.65)	2.01(1.54-2.61)[b]
Maternal smoking‡	2.59 (1.70-3.94)	2.60 (1.91-3.55)	2.22 (1.61-3.06)	3.38 (2.28-5.00)
Paternal smoking‡	1.60 (1.19-2.16)	1.38 (1.11-1.72)	1.26 (1.01-1.57)	1.89(1.41-2.54)[b]
Other smoking‡	1.31 (0.81-2.12)	1.20 (0.83-1.75)	1.17 (0.81-1.71)	1.38 (0.85-2.23)
1-10 cigarettes (workday)‡	1.62 (1.23-2.14)	1.45 (1.19-1.77)	1.28 (1.04-1.57)	2.03(1.55-2.67)[b]
>10 cigarettes (workday)‡	1.92 (1.25-2.95)	1.84 (1.32-2.58)	1.85 (1.33-2.58)	1.94 (1.26-3.00)
1-10 cigarettes (day off)‡	1.66 (1.25-2.19)	1.49 (1.22-1.82)	1.32 (1.07-1.62)	2.05(1.56-2.70)[b]
>10 cigarettes (day off)‡	1.77 (1.17-2.69)	1.62 (1.16-2.26)	1.59 (1.14-2.22)	1.87 (1.22-2.85)
FEV1 <85% predicted				
SHS (*in utero*)	1.08 (0.76-1.54)	0.93 (0.70-1.22)	0.92 (0.70-1.22)	1.09 (0.77-1.54)
Smoking during pregnancy	3.06 (0.95-9.89)	1.79 (0.69-4.69)	2.86 (1.28-6.37)	0.75 (0.10-5.81)
SHS in the first 2 years	1.44 (1.03-1.99)	1.07 (0.82-1.39)	1.30 (1.01-1.68)	1.05 (0.75-1.47)
Current SHS exposure‡	1.86 (1.39-2.50)	1.40 (1.13-1.75)	1.36 (1.09-1.70)	1.97(1.46-2.64)[b]
Maternal smoking‡	2.63 (1.66-4.16)	2.69 (1.92-3.77)	2.31 (1.63-3.28)	3.43 (2.23-5.27)
Paternal smoking‡	1.78 (1.28-2.48)	1.21 (0.94-1.55)	1.25 (0.97-1.61)	1.67 (1.20-2.33)
Other smoking‡	1.62 (0.97-2.70)	1.19 (0.78-1.83)	1.08 (0.69-1.68)	1.86 (1.13-3.05)
1-10 cigarettes (workday)‡	1.85 (1.36-2.52)	1.39 (1.11-1.75)	1.28 (1.01-1.61)	2.12(1.56-2.87)[b]
>10 cigarettes (workday)‡	1.89 (1.17-3.06)	1.54 (1.03-2.29)	1.86 (1.28-2.69)	1.36 (0.79-2.32)
1-10 cigarettes (day off)‡	1.89 (1.38-2.57)	1.43 (1.14-1.80)	1.35 (1.07-1.70)	2.07(1.52-2.81)[b]
>10 cigarettes (day off)‡	1.80 (1.13-2.86)	1.33 (0.89-1.98)	1.45 (0.99-2.12)	1.61 (0.98-2.64)
PEF <75% predicted				
SHS (*in utero*)	1.58 (1.09-2.29)	0.90 (0.66-1.22)[a]	1.09 (0.81-1.46)	1.18 (0.79-1.75)
Smoking during pregnancy	3.04 (0.83-11.12)	0.79 (0.19-3.32)	1.58 (0.55-4.53)	0.98 (0.13-7.68)
SHS in the first 2 years	1.42 (0.99-2.05)	0.82 (0.60-1.12)[a]	1.16 (0.87-1.54)	0.80 (0.53-1.22)
Current SHS exposure‡	1.41 (1.02-1.95)	1.01 (0.79-1.28)	1.07 (0.85-1.36)	1.29 (0.93-1.79)
Maternal smoking‡	1.58 (0.91-2.73)	1.19 (0.77-1.86)	1.24 (0.80-1.94)	1.51 (0.87-2.61)
Paternal smoking‡	1.38 (0.95-2.00)	0.97 (0.74-1.28)	1.05 (0.80-1.38)	1.21 (0.84-1.76)
Other smoking‡	1.45 (0.83-2.52)	1.13 (0.73-1.77)	1.12 (0.72-1.75)	1.50 (0.86-2.60)
1-10 cigarettes (workday)‡	1.40 (1.00-1.97)	1.03 (0.81-1.33)	1.07 (0.83-1.37)	1.34 (0.95-1.89)
>10 cigarettes (workday)‡	1.46 (0.84-2.53)	0.92 (0.56-1.52)	1.14 (0.72-1.81)	1.11 (0.61-2.03)
1-10 cigarettes (day off)‡	1.37 (0.97-1.93)	1.07 (0.84-1.38)	1.09 (0.85-1.40)	1.33 (0.94-1.88)
>10 cigarettes (day off)‡	1.63 (0.97-2.71)	0.73 (0.44-1.24)[a]	1.00 (0.63-1.59)	1.18 (0.66-2.09)
MMEF <75% predicted				
SHS (*in utero*)	1.65 (1.19-2.29)	1.18 (0.92-1.51)	1.40 (1.09-1.79)	1.21 (0.87-1.68)
Smoking during pregnancy	1.28 (0.29-5.77)	1.52 (0.58-3.94)	1.79 (0.74-4.33)	0.66 (0.09-5.12)

SHS in the first 2 years	1.45 (1.05-2.01)	1.03 (0.81-1.33)	1.29 (1.01-1.65)	0.99 (0.71-1.38)
Current SHS exposure‡	1.77 (1.32-2.36)	1.22 (0.99-1.49)[a]	1.32 (1.07-1.63)	1.48 (1.13-1.96)
Maternal smoking‡	1.70 (1.04-2.80)	1.53 (1.07-2.17)	1.54 (1.06-2.23)	1.69 (1.07-2.65)
Paternal smoking‡	1.76 (1.27-2.44)	1.13 (0.90-1.43)[a]	1.27 (1.01-1.62)	1.38 (1.01-1.88)
Other smoking‡	1.93 (1.20-3.11)	1.32 (0.91-1.92)	1.38 (0.94-2.02)	1.76 (1.12-2.77)
1-10 cigarettes (workday)‡	1.83 (1.35-2.48)	1.29 (1.05-1.59)	1.33 (1.07-1.66)	1.68 (1.26-2.22)
>10 cigarettes (workday)‡	1.50 (0.90-2.47)	0.83 (0.52-1.30)	1.29 (0.86-1.92)	0.72 (0.39-1.31)
1-10 cigarettes (day off)‡	1.80 (1.32-2.45)	1.31 (1.06-1.61)	1.38 (1.11-1.71)	1.59 (1.20-2.12)
>10 cigarettes (day off)‡	1.69 (1.06-2.70)	0.81 (0.52-1.25)[a]	1.11 (0.74-1.66)	1.11 (0.67-1.83)

*Adjusted for age, gender, body mass index, breastfeeding, parental education, home income, home coal use, asthma, study district.

†Sample too small to detect the effect.

‡Contrast with the subjects with no current exposure to SHS.

[a]Interaction between SHS exposure and breastfeeding: p value <0.05.

[b]Interaction between SHS exposure and overweight: p value <0.05.

Table S4. Lung function levels (FVC) of second hand smoke exposure, by gender and asthma status.

SHS exposure	Gender		Asthma	
	Males	Females	No	Yes
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
SHS (*in utero*)				
No	2.8 ± 0.8	2.4 ± 0.6*	2.6 ± 0.8	2.5 ± 0.8*
Yes	2.8 ± 0.9	2.4 ± 0.6*	2.6 ± 0.8	2.6 ± 0.7
Smoking during pregnancy				
No	2.8 ± 0.8	2.4 ± 0.6*	2.6 ± 0.8	2.6 ± 0.8*
Yes	2.4 ± 0.8	2.4 ± 0.6	2.5 ± 0.7	2.3 ± 0.7
SHS in first 2 years				
No	2.8 ± 0.8	2.4 ± 0.6*	2.6 ± 0.7	2.5 ± 0.8*
Yes	2.8 ± 0.9	2.4 ± 0.6*	2.6 ± 0.8	2.6 ± 0.7
Current SHS exposure‡				
No	2.9 ± 0.9	2.5 ± 0.6*	2.7 ± 0.8	2.6 ± 0.8
Yes	2.8 ± 0.8	2.4 ± 0.6*	2.6 ± 0.7	2.5 ± 0.7
Maternal smoking‡	2.7 ± 0.8	2.3 ± 0.6*	2.5 ± 0.7	2.3 ± 0.8
Paternal smoking‡	2.8 ± 0.8	2.4 ± 0.6*	2.6 ± 0.7	2.6 ± 0.8
Other smoking‡	2.7 ± 0.8	2.4 ± 0.6*	2.6 ± 0.7	2.5 ± 0.7
1-10 cigarettes (workday)‡	2.8 ± 0.8	2.4 ± 0.6*	2.6 ± 0.7	2.5 ± 0.7
>10 cigarettes (workday)‡	2.8 ± 0.8	2.4 ± 0.6*	2.6 ± 0.7	2.6 ± 0.9
1-10 cigarettes (day off)‡	2.8 ± 0.8	2.4 ± 0.6*	2.6 ± 0.7	2.5 ± 0.7
>10 cigarettes (day off)‡	2.8 ± 0.8	2.4 ± 0.6*	2.6 ± 0.7	2.6 ± 0.9

*Significant difference when compared to counterparts, $P<0.05$.

‡Contrast with the subjects with no current exposure to SHS

Table S5. Lung function levels (FEV1) of second hand smoke exposure, by gender and asthma status.

SHS exposure	Gender		Asthma	
	Males	Females	No	Yes
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
SHS (*in utero*)				
No	2.6 ± 0.8	2.3 ± 0.6*	2.5 ± 0.7	2.3 ± 0.7*
Yes	2.6 ± 0.8	2.3 ± 0.5*	2.4 ± 0.7	2.4 ± 0.6
Smoking during pregnancy				
No	2.6 ± 0.8	2.3 ± 0.6*	2.5 ± 0.7	2.3 ± 0.7*
Yes	2.4 ± 0.7	2.3 ± 0.6	2.3 ± 0.6	2.3 ± 0.7
SHS in first 2 years				
No	2.6 ± 0.8	2.3 ± 0.6*	2.5 ± 0.7	2.3 ± 0.7*
Yes	2.6 ± 0.8	2.3 ± 0.6*	2.5 ± 0.7	2.3 ± 0.6
Current SHS exposure‡				
No	2.7 ± 0.8	2.3 ± 0.6*	2.5 ± 0.7	2.4 ± 0.7*
Yes	2.6 ± 0.8	2.3 ± 0.6*	2.4 ± 0.7	2.3 ± 0.7*
Maternal smoking‡	2.5 ± 0.7	2.2 ± 0.5*	2.3 ± 0.7	2.2 ± 0.7
Paternal smoking‡	2.6 ± 0.8	2.3 ± 0.6*	2.4 ± 0.7	2.3 ± 0.7
Other smoking‡	2.5 ± 0.8	2.2 ± 0.5*	2.4 ± 0.7	2.3 ± 0.6
1-10 cigarettes (workday)‡	2.6 ± 0.8	2.3 ± 0.6*	2.4 ± 0.7	2.3 ± 0.6*
>10 cigarettes (workday)‡	2.6 ± 0.8	2.2 ± 0.6*	2.4 ± 0.7	2.4± 0.8
1-10 cigarettes (day off)‡	2.6 ± 0.8	2.3 ± 0.6*	2.4 ± 0.7	2.3 ± 0.7*
>10 cigarettes (day off)‡	2.6 ± 0.7	2.2 ± 0.6*	2.4 ± 0.7	2.4 ± 0.7

*Significant difference when compared to counterparts, $P<0.05$.

‡Contrast with the subjects with no current exposure to SHS

Table S6. Lung function levels (PEF) of second hand smoke exposure, by gender and asthma status.

SHS exposure	Gender		Asthma	
	Males	Females	No	Yes
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
SHS (*in utero*)				
No	5.2 ± 1.5	4.4 ± 1.2*	4.8 ± 1.4	4.5 ± 1.4*
Yes	5.1 ± 1.5	4.4 ± 1.1*	4.8 ± 1.4	4.6 ± 1.2
Smoking during pregnancy				
No	5.2 ± 1.5	4.4 ± 1.2*	4.8 ± 1.4	4.5 ± 1.3*
Yes	4.9 ± 1.4	4.4 ± 1.1	4.7 ± 1.2	4.1 ± 1.3
SHS in first 2 years				
No	5.2 ± 1.5	4.4 ± 1.2*	4.8 ± 1.4	4.5 ± 1.4*
Yes	5.2 ± 1.5	4.4 ± 1.1*	4.8 ± 1.4	4.6 ± 1.2
Current SHS exposure‡				
No	5.2 ± 1.5	4.4 ± 1.2*	4.8 ± 1.4	4.5 ± 1.4*
Yes	5.1 ± 1.5	4.4 ± 1.1*	4.7 ± 1.4	4.5 ± 1.3*
Maternal smoking‡	5.1 ± 1.4	4.3 ± 1.1*	4.7 ± 1.3	4.6 ± 1.5
Paternal smoking‡	5.1 ± 1.6	4.4 ± 1.1*	4.8 ± 1.4	4.5 ± 1.3*
Other smoking‡	5.0 ± 1.5	4.3 ± 1.2*	4.7 ± 1.4	4.4 ± 1.3
1-10 cigarettes (workday)‡	5.1 ± 1.5	4.4 ± 1.1*	4.7 ± 1.4	4.5 ± 1.3*
>10 cigarettes (workday)‡	5.2 ± 1.5	4.4 ± 1.1*	4.8 ± 1.4	4.9 ± 1.5
1-10 cigarettes (day off)‡	5.1 ± 1.5	4.4 ± 1.1*	4.7 ± 1.4	4.4 ± 1.3*
>10 cigarettes (day off)‡	5.2 ± 1.5	4.4 ± 1.1*	4.8 ± 1.4	5.0 ± 1.4

*Significant difference when compared to counterparts, $P<0.05$.

‡Contrast with the subjects with no current exposure to SHS

Table S7. Lung function levels (MMEF) of second hand smoke exposure, by gender and asthma status.

SHS exposure	Gender		Asthma	
	Males	Females	No	Yes
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
SHS (*in utero*)				
No	3.5 ± 1.2	3.2 ± 0.9*	3.4 ± 1.1	3.1 ± 1.0*
Yes	3.4 ± 1.1	3.2 ± 0.9*	3.3 ± 1.0	3.1 ± 1.0*
Smoking during pregnancy				
No	3.5 ± 1.2	3.2 ± 0.9*	3.4 ± 1.0	3.1 ± 1.0*
Yes	3.4 ± 0.9	3.3 ± 0.9	3.3 ± 0.9	3.2 ± 0.9
SHS in first 2 years				
No	3.5 ± 1.2	3.2 ± 0.9*	3.4 ± 1.1	3.0 ± 1.0*
Yes	3.5 ± 1.1	3.2 ± 0.9*	3.4 ± 1.0	3.1 ± 0.9*
Current SHS exposure‡				
No	3.5 ± 1.2	3.2 ± 0.9*	3.4 ± 1.1	3.0 ± 1.0*
Yes	3.4 ± 1.1	3.2 ± 0.9*	3.3 ± 1.0	3.1 ± 1.0*
Maternal smoking‡	3.4 ± 1.1	3.1 ± 0.9*	3.2 ± 1.0	3.2 ± 1.0
Paternal smoking‡	3.5 ± 1.2	3.2 ± 0.9*	3.4 ± 1.0	3.0 ± 1.0*
Other smoking‡	3.3 ± 1.1	3.1 ± 0.9*	3.2 ± 1.0	3.0 ± 0.9
1-10 cigarettes (workday)‡	3.4 ± 1.1	3.2 ± 0.9*	3.3 ± 1.0	3.0 ± 1.0*
>10 cigarettes (workday)‡	3.5 ± 1.2	3.2 ± 0.9*	3.3 ± 1.0	3.3 ± 1.1
1-10 cigarettes (day off)‡	3.4 ± 1.1	3.2 ± 0.9*	3.3 ± 1.0	3.0 ± 1.0*
>10 cigarettes (day off)‡	3.4 ± 1.2	3.2 ± 0.9*	3.3 ± 1.0	3.2 ± 1.1

*Significant difference when compared to counterparts, $P<0.05$.

‡Contrast with the subjects with no current exposure to SHS

Questionnaire in Chinese version:

Please see attached file named as “Questionnaire in Chinese” in PDF.