**Supporting Information**

**A community study of the effect of polycyclic aromatic hydrocarbon metabolites on heart rate variability based on the Framingham score**

Yingying Feng,[1] Huizhen Sun,[1] Yuanchao Song ,[1] Junzhe Bao,[1] Xiji Huang,[1] Jian Ye,[1] Jing Yuan,[1] Weihong Chen,[1] David C. Christiani,[2] Tangchun Wu,[1] Xiaomin Zhang[1]

[1]Department of Occupational and Environmental Health and Ministry of Education Key Lab for Environment and Health, School of Public Health, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China

[2]Department of Environmental Health, Harvard School of Public Health, Boston, MA, USA

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**Table S1** Spearman Correlation Between Creatinine-corrected OH-PAHs (nmol/mmol creatinine) [*]

| | 2-OHNa | 2-OHFlu | 9-OHFlu | 1-OHPh | 2-OHPh | 3-OHPh | 4-OHPh | 9-OHPh | 1-OHP | ΣOHNa | ΣOHFlu | ΣOHPh | ΣOH-PAHs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-OHNa | 0.67 | 0.57 | 0.32 | 0.57 | 0.51 | 0.49 | 0.46 | 0.47 | 0.38 | - | 0.39 | 0.51 | 0.67 |
| 2-OHNa | | 0.61 | 0.40 | 0.60 | 0.52 | 0.56 | 0.53 | 0.56 | 0.44 | - | 0.46 | 0.59 | 0.83 |
| 2-OHFlu | | | 0.49 | 0.84 | 0.76 | 0.80 | 0.69 | 0.70 | 0.50 | 0.61 | - | 0.79 | 0.75 |
| 9-OHFlu | | | | 0.54 | 0.45 | 0.52 | 0.49 | 0.52 | 0.37 | 0.39 | - | 0.54 | 0.71 |
| 1-OHPh | | | | | 0.84 | 0.89 | 0.85 | 0.85 | 0.59 | 0.61 | 0.64 | - | 0.80 |
| 2-OHPh | | | | | | 0.78 | 0.70 | 0.70 | 0.49 | 0.54 | 0.54 | - | 0.68 |
| 3-OHPh | | | | | | | 0.85 | 0.88 | 0.64 | 0.55 | 0.61 | - | 0.77 |
| 4-OHPh | | | | | | | | 0.92 | 0.65 | 0.52 | 0.56 | - | 0.75 |
| 9-OHPh | | | | | | | | | 0.68 | 0.55 | 0.58 | - | 0.78 |
| 1-OHP | | | | | | | | | | 0.43 | 0.41 | 0.67 | 0.63 |
| ΣOHNa | | | | | | | | | | | 0.46 | 0.58 | 0.84 |
| ΣOHFlu | | | | | | | | | | | | 0.62 | 0.78 |
| ΣOHPh | | | | | | | | | | | | | 0.81 |

Abbreviations: 2-OHFlu, 2-hydroxyfluorene; 9-OHFlu, 9-hydroxyfluorene; ΣOHFlu, total concentration of hydroxyfluorene; 1-OHNa,

1-hydroxynaphthalene; 2-OHNa, 2-hydroxynaphthalene; ΣOHNa, total concentration of hydroxynaphthalene; 1-OHP, 1-hydroxypyrene; ΣOH-PAHs, total

concentration of all PAH metabolites; 1-OHPh, 1-hydroxyphenanthrene; 2-OHPh, 2-hydroxyphenanthrene; 3-OHPh, 3-hydroxyphenanthrene; 4-OHPh,

4-hydroxyphenanthrene; 9-OHPh, 9-hydroxyphenanthrene; ΣOHPh, total concentration of hydroxyphenanthrene.

[*] Spearman correlation coefficients were adjusted for BMI, passive smoking, physical activity, alcohol consumption, diet, and FRS.

All correlation coefficients $P < 0.0001$.

**Table S2** Effect Estimates for the Associations of Creatinine-corrected OH-PAH Concentrations with HRV

| HRV indices | 1-OHP $\beta^{\dagger}$ | 1-OHP 95% CI | ΣOHNa $\beta^{\dagger}$ | ΣOHNa 95% CI | ΣOHFlu $\beta^{\dagger}$ | ΣOHFlu 95% CI | ΣOHPh $\beta^{\dagger}$ | ΣOHPh 95% CI | ΣOH-PAHs $\beta^{\dagger}$ | ΣOH-PAHs 95% CI |
|---|---|---|---|---|---|---|---|---|---|---|
| SDNN | 0.003 | -0.011, 0.016 | **-0.016** | **-0.030, -0.003** | **-0.017** | **-0.030, -0.003** | -0.001 | -0.015, 0.012 | -0.004 | -0.009, 0.001 |
| RMSSD | 0.004 | -0.011, 0.019 | 0.001 | -0.014, 0.016 | 0.003 | -0.013, 0.018 | 0.012 | -0.003, 0.027 | 0.003 | -0.012, 0.019 |
| TP | 0.018 | -0.012, 0.048 | -0.024 | -0.055, 0.006 | -0.027 | -0.058, 0.004 | 0.009 | -0.022, 0.039 | -0.018 | -0.049, 0.013 |
| LF | 0.004 | -0.033, 0.041 | -0.032 | -0.068, 0.004 | **-0.062** | **-0.099, -0.024** | -0.022 | -0.059, 0.015 | **-0.055** | **-0.093, -0.018** |
| HF | 0.037 | -0.003, 0.077 | 0.015 | -0.025, 0.056 | 0.027 | -0.013, 0.068 | 0.049 | -0.002, 0.096 | 0.031 | -0.009, 0.072 |
| LF/HF | -0.033 | -0.067, 0.001 | **-0.046** | **-0.079, -0.013** | **-0.078** | **-0.113, -0.043** | -0.037 | -0.013, 0.004 | **-0.030** | **-0.042, -0.018** |

Abbreviations: SDNN, standard deviation of NN intervals; RMSSD, root mean square of successive differences in adjacent NN intervals; TP, total power; LF, low frequency; HF, high frequency; LF/HF, the LF to HF ratio; HRV, heart rate variability; 1-OHP, 1-hydroxypyrene; ΣOHNa, total concentration of hydroxynaphthalene; ΣOHFlu, total concentration of hydroxyfluorine; ΣOHPh, total concentration of hydroxyphenanthrene; ΣOH-PAHs, total concentration of all PAH metabolites.

$^{\dagger}\beta$ represents change in HRV indices for OH-PAH.