

Supplementary Material

Occupational Hazard Factors and the Trajectory Of Fasting Blood Glucose Changes in Chinese Male Steelworkers Based on Environmental Risk Scores: A Prospective Cohort Study

Table S1. General demographic comparisons between the participant population and the missing population.

Table S2. Evaluation of group-based trajectory models.

Table S3. Logistic Analysis of Occupational Hazards and FBG Trajectories Group 1 and Group 2.

Table S4. Trend χ^2 test for cumulative exposure to occupational hazards and ERS in trajectories 1(n = 3312) and 2(n = 215).

Table S5. Logistic Analysis of Occupational Hazards and FBG Trajectories Group 1 and Group 3.

Table S6. Trend χ^2 test for cumulative exposure to occupational hazards and ERS in trajectories 1(n = 3312) and 3(n = 201).

Table S7. Associations between occupational hazards and FBG trajectories by factory category in Group 1 and Group 2.

Table S8. Associations between occupational hazards and FBG trajectories by factory category in Group 1 and Group 3.

Table S9. Associations between occupational hazards and FBG trajectories by age in Group 1 and Group 2.

Table S10. Associations between occupational hazards and FBG trajectories by age in Group 1 and Group 3.

Table S11. Associations between occupational hazards and FBG trajectories by education level in Group 1 and Group 2.

Table S12. Associations between occupational hazards and FBG trajectories by education level in Group 1 and Group 3.

Table S13. Associations between occupational hazards and FBG trajectories by entry factory date in Group 1 and Group 2.

Table S14. Associations between occupational hazards and FBG trajectories by entry factory date in Group 1 and Group 3.

Table S15. Associations between occupational hazards and FBG trajectories by shift work in Group 1 and Group 2.

Table S16. Associations between occupational hazards and FBG trajectories by shift work in Group 1 and Group 3.

Table S17. Associations between occupational hazards and FBG trajectories by BMI in Group 1 and Group 2.

Table S18. Associations between occupational hazards and FBG trajectories by BMI in Group 1 and Group 3.

Table S19. Logistic Analysis of ERS and FBG Trajectories Group 1 and Group 2.

Table S20. Logistic Analysis of ERS and FBG Trajectories Group 1 and Group 3.

Table S21. Logistic Analysis of Occupational Hazards and FBG Trajectories after excluding diabetic patients.

Table S22. Logistic Analysis of ERS and FBG Trajectories after excluding diabetic patients.

Supplementary Table S1.General demographic comparisons between the participant population and the missing population.

Variables	Total Population* (n=6971)	Participant Population (n=3728)	Missing population (n=3243)	χ^2	P-value
age(years),n(%)				436.790	<0.001
<30	650(9.3)	273(7.3)	377(11.6)		
30~	1947(27.9)	1164(31.2)	783(24.1)		
40~	2602(37.4)	1674(44.9)	928(28.6)		
≥50	1772(25.4)	617(16.6)	1155(35.7)		
nationality,n(%)				1.667	0.197
Han	6796(97.5)	3626(97.3)	3170(97.7)		
others	175(2.5)	102(2.7)	73(2.3)		
marital status,n(%)				38.175	<0.001
unmarried	317(4.5)	116(3.1)	201(6.2)		
married	6209(89.1)	3367(90.3)	2842(87.6)		
others	445(6.4)	245(6.6)	200(6.2)		
education level,n(%)				164.686	<0.001
junior high school and below	1813(26.0)	754(20.2)	1059(32.7)		
high school or secondary specialized school	3517(50.5)	2112(56.7)	1405(43.3)		
college and above	1641(23.5)	862(23.1)	779(24.0)		
family income per capita monthly (¥),n(%)				134.121	<0.001
<2000	3100(44.5)	1893(50.8)	1207(37.2)		
2000~3000	2587(37.1)	1259(33.8)	1328(40.9)		
≥3000	1284(18.4)	576(15.4)	708(21.9)		

Note: * Total Population Is a cohort population that contains only men

Supplementary Table S2.Evaluation of group-based trajectory models.

Model	BIC	Sample size proportion (AvePP)				
		Subgroup1	Subgroup2	Subgroup3	Subgroup4	Subgroup5
Model 1	-27192.92	93.4(0.99)	6.6(0.99)			
Model 2	-25849.49	88.7(0.99)	5.9(0.95)	5.4(0.99)		
Model 3	-25284.87	85.4(0.99)	8.1(0.91)	2.1(0.97)	4.4(0.99)	
Model 4	-24758.51	83.5(0.98)	9.2(0.91)	1.3(0.97)	1.7(0.97)	4.3(0.99)

Model 1 to Model 4 represent the models when the population is divided into 2 to 5 groups; BIC is the Bayesian Information Criterion (BIC), the closer the value is to 0, the better the model fits; the sample size of each group was >5 % of the total participants; AvePP is the Average Posterior Probability of Grouping, usually > 0.7 is acceptable.

Supplementary Table S3. Logistic Analysis of Occupational Hazards and FBG Trajectories Group 1 and Group 2.

subgroup	n group1	n group2	Model1					Model2				
			β	SE_{β}	Wald	P-value	OR (95%CI)	β	SE_{β}	Wald	P-value	OR (95%CI)
noise exposure status												
never	950	56	—	—	—	—	1.00 (ref)	—	—	—	—	1.00 (ref)
ever	467	36	0.27	0.22	1.47	0.225	1.31(0.85-2.02)	0.29	0.23	1.68	0.194	1.34(0.86-2.09)
current	1895	123	0.10	0.17	0.34	0.562	1.10(0.80-1.53)	0.13	0.20	0.43	0.511	1.14(0.77-1.68)
dust exposure status												
never	1116	72	—	—	—	—	1.00 (ref)	—	—	—	—	1.00 (ref)
ever	357	23	0.00	0.25	0.00	0.995	1.00(0.62-1.62)	-0.08	0.25	0.10	0.749	0.92(0.57-1.50)
current	1839	120	0.01	0.15	0.01	0.941	1.01(0.75-1.37)	0.06	0.17	0.12	0.731	1.06(0.76-1.48)
high-temperature exposure status												
never	933	46	—	—	—	—	1.00 (ref)	—	—	—	—	1.00 (ref)
ever	340	22	0.27	0.27	1.04	0.308	1.31(0.78-2.21)	0.11	0.27	0.16	0.691	1.12(0.65-1.90)
current	2039	147	0.38	0.17	4.80	0.029	1.46(1.04-2.06)	0.44	0.19	5.44	0.020	1.55(1.07-2.23)
CO exposure status												
never	1180	75	—	—	—	—	1.00 (ref)	—	—	—	—	1.00 (ref)
ever	411	36	0.32	0.21	2.32	0.128	1.38(0.91-2.08)	0.25	0.21	1.39	0.239	1.28(0.85-1.93)
current	1721	104	-0.05	0.16	0.11	0.746	0.95(0.70-1.29)	-0.02	0.17	0.01	0.931	0.99(0.70-1.38)
cumulative noise exposure,[dB(A)·year]												
never exposed	950	56	—	—	—	—	1.00 (ref)	—	—	—	—	1.00 (ref)
33.64~	599	33	-0.07	0.23	0.09	0.764	0.94(0.60-1.45)	0.23	0.24	0.88	0.349	1.25(0.78-2.01)
90.70~	590	40	0.14	0.21	0.43	0.512	1.15(0.76-1.75)	0.22	0.23	0.91	0.340	1.25(0.79-1.96)
93.56~	603	36	0.01	0.22	0.00	0.954	1.01(0.66-1.56)	-0.03	0.24	0.01	0.906	0.97(0.61-1.55)
96.25~111.76	570	50	0.40	0.20	3.89	0.049	1.488(1.01-2.21)	0.32	0.22	2.00	0.157	1.37(0.89-2.12)
cumulative dust exposure,[mg/m³·year]												
never exposed	1116	72	—	—	—	—	1.00 (ref)	—	—	—	—	1.00 (ref)
59.22~	572	26	-0.35	0.24	2.23	0.135	0.71(0.45-1.12)	0.08	0.25	0.10	0.748	1.09(0.66-1.78)
138.70~	557	35	-0.03	0.21	0.02	0.901	0.97(0.64-1.48)	0.09	0.23	0.16	0.685	1.10(0.70-1.71)
271.30~	540	39	0.11	0.21	0.30	0.583	1.12(0.75-1.68)	-0.03	0.22	0.02	0.896	0.97(0.64-1.48)
456.82~1464.48	527	43	0.24	0.20	1.38	0.240	1.27(0.86-1.87)	-0.04	0.22	0.03	0.874	0.97(0.63-1.48)
cumulative high-temperature												

exposure,[°C·year]												
never exposed	933	46	—	—	—	—	1.00 (ref)	—	—	—	—	1.00 (ref)
374.44~	616	28	-0.08	0.25	0.11	0.740	0.92(0.57-1.49)	0.20	0.28	0.51	0.477	1.22(0.71-2.09)
951.20~	607	43	0.36	0.22	2.75	0.097	1.44(0.94-2.21)	0.50	0.23	4.66	0.031	1.65(1.05-2.59)
2316.34~	595	38	0.26	0.23	1.32	0.251	1.30(0.83-2.02)	0.15	0.23	0.40	0.525	1.16(0.73-1.84)
3590.92~7608.06	561	60	0.77	0.20	14.53	<0.001	2.17(1.46-3.23)	0.62	0.22	7.82	0.005	1.85(1.20-2.85)
cumulative CO exposure,[mg/m³·year]												
never exposed	1180	75	—	—	—	—	1.00 (ref)	—	—	—	—	1.00 (ref)
76.76~	554	27	-0.27	0.23	1.33	0.249	0.77(0.49-1.20)	0.12	0.24	0.25	0.621	1.13(0.70-1.80)
277.72~	537	35	0.03	0.21	0.01	0.905	1.03(0.68-1.55)	0.06	0.22	0.07	0.794	1.06(0.69-1.62)
544.88~	531	32	-0.05	0.22	0.06	0.807	0.95(0.62-1.45)	-0.13	0.22	0.35	0.552	0.88(0.57-1.35)
888.50~2684.10	510	46	0.35	0.20	3.23	0.072	1.42(0.97-2.08)	0.20	0.22	0.84	0.358	1.22(0.80-1.85)

Model1 is unadjusted; Model2 is adjusted for age, nationality, education level, monthly family income per capita , entry factory date, work categories, shift work, usage of dust proof masks, usage of cooling drinks, usage of noise proof earplugs, personal and family disease history, medication history, BMI, PA, smoking, drinking, and PDI scores.

Supplementary Table S4. Trend χ^2 test for cumulative exposure to occupational hazards and ERS in trajectories 1(n = 3312) and 2(n = 215).

Variables	χ^2	P-value
cumulative noise exposure,[dB(A)·year]	3.251	0.071
cumulative dust exposure,[mg/m³·year]	2.233	0.135
cumulative high-temperature exposure,[°C·year]	15.722	<0.001
cumulative CO exposure,[mg/m³·year]	2.479	0.115
ERS1	17.129	<0.001
ERS2	18.387	<0.001

Model1 is unadjusted; Model2 is adjusted for age, nationality, education level, monthly family income per capita , entry factory date, work categories, shift work, usage of dust proof masks, usage of cooling drinks, usage of noise proof earplugs, personal and family disease history, medication history, BMI, PA, smoking, drinking, and PDI scores.

Supplementary Table S5. Logistic Analysis of Occupational Hazards and FBG Trajectories Group 1 and Group 3.

[illegible]

never exposed	933	65	—	—	—	—	1.00 (ref)	—	—	—	—	1.00 (ref)
374.44~	616	27	-0.46	0.24	3.90	0.048	0.63(0.40-0.99)	0.10	0.34	0.09	0.766	1.11(0.57-2.15)
951.20~	607	21	-0.70	0.26	7.46	0.006	0.50(0.30-0.82)	-0.03	0.32	0.01	0.922	0.97(0.52-1.81)
2316.34~	595	38	-0.09	0.21	0.17	0.680	0.92(0.61-1.39)	0.23	0.29	0.65	0.420	1.26(0.72-2.20)
3590.92~7608.06	561	50	0.25	0.20	1.59	0.208	1.28(0.87-1.88)	0.28	0.29	0.95	0.331	1.33(0.75-2.35)
cumulative CO exposure,[mg/m ³ ·year]												
never exposed	1180	68	—	—	—	—	1.00 (ref)	—	—	—	—	1.00 (ref)
76.76~	554	20	-0.47	0.26	3.25	0.072	0.63(0.38-1.04)	0.15	0.31	0.25	0.620	1.17(0.64-2.13)
277.72~	537	29	-0.07	0.23	0.08	0.776	0.94(0.60-1.47)	0.04	0.30	0.01	0.905	1.04(0.58-1.86)
544.88~	531	38	0.22	0.21	1.07	0.300	1.24(0.82-1.87)	0.23	0.28	0.71	0.398	1.26(0.74-2.17)
888.50~2684.10	510	46	0.45	0.20	5.11	0.024	1.57(1.06-2.31)	-0.01	0.30	0.00	0.977	0.99(0.55-1.79)

Model1 is unadjusted; Model2 is adjusted for age, nationality, education level, monthly family income per capita , entry factory date, work categories, shift work, usage of dust proof masks, usage of cooling drinks, usage of noise proof earplugs, personal and family disease history, medication history, BMI, PA, smoking, drinking, and PDI scores.

Supplementary Table S6. Trend χ^2 test for cumulative exposure to occupational hazards and ERS in trajectories 1(n = 3312) and 3(n = 201).

Variables	χ^2	P-value
cumulative noise exposure,[dB(A)·year]	1.367	0.242
cumulative dust exposure,[mg/m ³ ·year]	6.744	0.009
cumulative high-temperature exposure,[°C·year]	1.644	0.200
cumulative CO exposure,[mg/m ³ ·year]	6.785	0.009
ERS1	0.222	0.638
ERS2	1.416	0.234

Model1 is unadjusted; Model2 is adjusted for age, nationality, education level, monthly family income per capita , entry factory date, work categories, shift work, usage of dust proof masks, usage of cooling drinks, usage of noise proof earplugs, personal and family disease history, medication history, BMI, PA, smoking, drinking, and PDI scores.

Supplementary Table S7. Associations between occupational hazards and FBG trajectories by factory category in Group 1 and Group 2.

subgroup	product-line factories						auxiliary factories					
	n group 1	n group 2	Model1		Model2		n group 1	n group 2	Model1		Model2	
			P- value	OR (95%CI)	P- value	OR (95%CI)			P- value	OR (95%CI)	P- value	OR (95%CI)
noise exposure status												
never	236	16	—	1.00 (ref)	—	1.00 (ref)	714	40	—	1.00 (ref)	—	1.00 (ref)
ever	162	12	0.823	1.09(0.50-2.37)	0.735	1.15(0.52-2.52)	305	24	0.203	1.41(0.83-2.37)	0.594	1.18(0.65-2.15)
current	1247	79	0.811	0.93(0.54-1.63)	0.784	1.09(0.59-2.03)	648	44	0.393	1.21(0.78-1.88)	0.568	1.19(0.65-2.18)
dust exposure status												
never	430	25	—	1.00 (ref)	—	1.00 (ref)	686	47	—	1.00 (ref)	—	1.00 (ref)
ever	135	9	0.733	1.15(0.52-2.52)	0.930	0.97(0.44-2.12)	222	14	0.792	0.92(0.50-1.70)	0.285	0.68(0.34-1.38)
current	1080	73	0.528	1.16(0.73-1.86)	0.401	1.24(0.75-2.03)	759	47	0.635	0.90(0.60-1.37)	0.216	0.70(0.40-1.23)
high-temperature exposure status												
never	375	18	—	1.00 (ref)	—	1.00 (ref)	558	28	—	1.00 (ref)	—	1.00 (ref)
ever	169	8	0.974	0.99(0.42-2.31)	0.501	0.75(0.33-1.73)	171	14	0.148	1.63(0.84-3.17)	0.412	1.38(0.64-2.97)
current	1101	81	0.110	1.53(0.91-2.59)	0.042	1.78(1.02-3.10)	938	66	0.145	1.40(0.89-2.21)	0.320	1.33(0.76-2.33)
CO exposure status												
never	587	42	—	1.00 (ref)	—	1.00 (ref)	593	33	—	1.00 (ref)	—	1.00 (ref)
ever	199	16	0.702	1.12(0.62-2.04)	0.980	1.01(0.56-1.82)	212	20	0.073	1.70(0.95-3.02)	0.162	1.59(0.83-3.06)
current	859	49	0.296	0.80(0.52-1.22)	0.227	0.75(0.46-1.20)	862	55	0.546	1.15(0.74-1.79)	0.283	1.39(0.76-2.54)
cumulative noise exposure,[dB(A)·year]												
never exposed	236	16	—	1.00 (ref)	—	1.00 (ref)	714	40	—	1.00 (ref)	—	1.00 (ref)
33.64~	373	21	0.587	0.83(0.43-1.62)	0.528	1.26(0.62-2.58)	226	12	0.874	0.95(0.49-1.84)	0.764	0.89(0.40-1.95)
90.70~	394	28	0.884	1.05(0.56-1.98)	0.427	1.32(0.66-2.64)	196	12	0.793	1.09(0.56-2.12)	0.941	1.03(0.49-2.17)
93.56~	398	19	0.315	0.70(0.36-1.40)	0.420	0.74(0.36-1.53)	205	17	0.191	1.48(0.82-2.67)	0.239	1.51(0.76-3.01)
96.25~111.76	244	23	0.330	1.39(0.72-2.70)	0.430	1.33(0.65-2.72)	326	27	0.130	1.48(0.89-2.45)	0.270	1.45(0.75-2.79)
cumulative dust exposure,[mg/m³·year]												
never exposed	430	25	—	1.00 (ref)	—	1.00 (ref)	686	47	—	1.00 (ref)	—	1.00 (ref)
59.22~	290	17	0.980	1.01(0.54-1.90)	0.245	1.51(0.75-3.04)	282	9	0.039	0.47(0.23-0.96)	0.107	0.48(0.20-1.17)

138.70～	386	21	0.827	0.94(0.52-1.70)	0.561	1.20(0.65-2.25)	171	14	0.573	1.20(0.64-2.22)	0.574	0.80(0.38-1.72)
271.30～	309	21	0.609	1.17(0.64-2.13)	0.885	0.96(0.52-1.77)	231	18	0.654	1.14(0.65-2.00)	0.546	0.81(0.42-1.59)
456.82～1464.48	230	23	0.071	1.72(0.96-3.10)	0.516	1.23(0.65-2.33)	297	20	0.950	0.98(0.57-1.69)	0.199	0.65(0.34-1.26)
cumulative high-temperature exposure,[°C·year]												
never exposed	375	18	—	1.00 (ref)	—	1.00 (ref)	558	28	—	1.00 (ref)	—	1.00 (ref)
374.44～	260	13	0.913	1.04(0.50-2.16)	0.357	1.47(0.65-3.32)	356	15	0.593	0.84(0.44-1.59)	0.740	0.87(0.38-2.00)
951.20～	397	24	0.471	1.26(0.67-2.36)	0.273	1.45(0.75-2.82)	210	19	0.056	1.80(0.99-3.30)	0.109	1.75(0.88-3.47)
2316.34～	304	19	0.435	1.30(0.67-2.53)	0.577	1.21(0.62-2.38)	291	19	0.389	1.30(0.71-2.37)	0.880	1.05(0.53-2.10)
3590.92～7608.06	309	33	0.008	2.23(1.23-4.03)	0.062	1.84(0.97-3.47)	252	27	0.007	2.14(1.23-3.70)	0.097	1.74(0.90-3.36)
cumulative CO exposure,[mg/m ³ ·year]												
never exposed	587	42	—	1.00 (ref)	—	1.00 (ref)	593	33	—	1.00 (ref)	—	1.00 (ref)
76.76～	248	15	0.588	0.85(0.46-1.55)	0.83	1.07(0.56-2.05)	306	12	0.309	0.71(0.36-1.38)	0.914	0.96(0.43-2.12)
277.72～	359	20	0.371	0.78(0.45-1.35)	0.518	0.83(0.47-1.46)	178	15	0.199	1.51(0.80-2.85)	0.176	1.64(0.80-3.35)
544.88～	311	18	0.465	0.81(0.46-1.43)	0.184	0.67(0.37-1.21)	220	14	0.683	1.14(0.60-2.18)	0.922	1.04(0.50-2.17)
888.50～2684.10	140	12	0.596	1.20(0.62-2.34)	0.387	0.73(0.36-1.49)	370	34	0.048	1.65(1.01-2.71)	0.073	1.74(0.95-3.19)

Model1 is unadjusted; Model2 is adjusted for age, nationality, education level, monthly family income per capita , entry factory date, work categories, shift work, usage of dust proof masks, usage of cooling drinks, usage of noise proof earplugs, personal and family disease history, medication history, BMI, PA, smoking, drinking, and PDI scores.

Supplementary Table S8. Associations between occupational hazards and FBG trajectories by factory category in Group 1 and Group 3.

subgroup	product-line factories						auxiliary factories					
	n group 1	n group 3	Model1		Model2		n group 1	n group 3	Model1		Model2	
			P- value	OR (95%CI)	P- value	OR (95%CI)			P- value	OR (95%CI)	P- value	OR (95%CI)
noise exposure status												
never	236	24	—	1.00 (ref)	—	1.00 (ref)	714	50	—	1.00 (ref)	—	1.00 (ref)
ever	162	9	0.134	0.55(0.25-1.21)	0.532	0.71(0.24-2.08)	305	25	0.536	1.17(0.71-1.93)	0.657	0.82(0.34-1.98)
current	1247	43	<0.00 1	0.34(0.20-0.57)	0.243	0.63(0.29-1.36)	648	50	0.640	1.10(0.73-1.65)	0.206	1.65(0.76-3.60)
dust exposure status												
never	430	14	—	1.00 (ref)	—	1.00 (ref)	686	53	—	1.00 (ref)	—	1.00 (ref)
ever	135	5	0.808	1.14(0.40-3.22)	0.999	1.01(0.28-3.63)	222	16	0.814	0.93(0.52-1.67)	0.857	1.08(0.45-2.59)
current	1080	57	0.112	1.62(0.89-2.94)	0.182	1.67(0.79-3.54)	759	56	0.817	0.96(0.65-1.41)	0.789	1.11(0.53-2.33)
high-temperature exposure status												
never	375	24	—	1.00 (ref)	—	1.00 (ref)	558	41	—	1.00 (ref)	—	1.00 (ref)
ever	169	8	0.471	0.74(0.33-1.68)	0.515	0.69(0.22-2.13)	171	16	0.432	1.27(0.70-2.33)	0.948	1.04(0.31-3.48)
current	1101	44	0.071	0.62(0.38-1.04)	0.782	1.11(0.54-2.29)	938	68	0.948	0.99(0.66-1.47)	0.150	1.71(0.82-3.53)
CO exposure status												
never	587	29	—	1.00 (ref)	—	1.00 (ref)	593	39	—	1.00 (ref)	—	1.00 (ref)
ever	199	10	0.964	1.02(0.49-2.12)	0.751	0.86(0.33-2.22)	212	15	0.816	1.08(0.58-1.99)	0.278	1.62(0.68-3.87)
current	859	37	0.589	0.87(0.53-1.43)	0.973	1.01(0.51-2.02)	862	71	0.275	1.25(0.84-1.88)	0.072	2.08(0.94-4.62)
cumulative noise exposure,[dB(A)·year]												
never exposed	236	24	—	1.00 (ref)	—	1.00 (ref)	714	50	—	1.00 (ref)	—	1.00 (ref)
33.64~	373	14	0.004	0.37(0.19-0.73)	0.649	0.81(0.32-2.05)	226	16	0.971	1.01(0.57-1.81)	0.829	0.89(0.30-2.60)
90.70~	394	14	0.002	0.35(0.18-0.69)	0.313	0.62(0.25-1.57)	196	18	0.344	1.31(0.75-2.30)	0.306	1.54(0.67-3.52)
93.56~	398	9	<0.00 1	0.22(0.10-0.49)	0.208	0.56(0.22-1.39)	205	14	0.936	0.98(0.53-1.80)	0.966	1.02(0.39-2.66)
96.25~111.76	244	15	0.141	0.61(0.31-1.18)	0.389	0.65(0.24-1.74)	326	27	0.499	1.18(0.73-1.92)	0.725	1.17(0.49-2.83)
cumulative dust exposure,[mg/m³·year]												
never exposed	430	14	—	1.00 (ref)	—	1.00 (ref)	686	53	—	1.00 (ref)	—	1.00 (ref)

59.22~	290	10	0.891	1.06(0.46-2.42)	0.497	1.43(0.51-4.01)	282	10	0.027	0.46(0.23-0.92)	0.512	1.42(0.50-4.08)
138.70~	386	15	0.640	1.19(0.57-2.51)	0.746	1.17(0.45-3.03)	171	11	0.592	0.83(0.43-1.63)	0.114	0.28(0.06-1.36)
271.30~	309	22	0.025	2.19(1.10-4.34)	0.137	1.94(0.81-4.66)	231	17	0.866	0.95(0.54-1.68)	0.619	1.25(0.52-3.02)
456.82~1464.48	230	15	0.068	2.00(0.95-4.22)	0.219	1.85(0.69-4.90)	297	34	0.088	1.48(0.94-2.33)	0.548	1.27(0.58-2.79)
cumulative high-temperature exposure,[°C·year]												
never exposed	375	24	—	1.00 (ref)	—	1.00 (ref)	558	41	—	1.00 (ref)	—	1.00 (ref)
374.44~	260	6	0.028	0.36(0.15-0.89)	0.492	0.67(0.22-2.08)	356	21	0.428	0.80(0.47-1.38)	0.189	1.98(0.72-5.50)
951.20~	397	12	0.038	0.47(0.23-0.96)	0.341	0.63(0.25-1.62)	210	9	0.153	0.58(0.28-1.22)	0.628	1.29(0.46-3.62)
2316.34~	304	9	0.053	0.46(0.21-1.01)	0.841	0.91(0.36-2.30)	291	29	0.229	1.36(0.83-2.23)	0.117	1.90(0.85-4.22)
3590.92~7608.06	309	25	0.428	1.26(0.71-2.26)	0.076	2.16(0.92-5.04)	252	25	0.257	1.35(0.80-2.27)	0.890	1.07(0.43-2.62)
cumulative CO exposure,[mg/m³·year]												
never exposed	587	29	—	1.00 (ref)	—	1.00 (ref)	593	39	—	1.00 (ref)	—	1.00 (ref)
76.76~	248	5	0.067	0.41(0.16-1.07)	0.772	0.87(0.32-2.31)	306	15	0.346	0.75(0.40-1.37)	0.056	2.44(0.98-6.06)
277.72~	359	18	0.962	1.02(0.56-1.85)	0.942	0.97(0.43-2.21)	178	11	0.860	0.94(0.47-1.87)	0.368	1.63(0.56-4.74)
544.88~	311	17	0.747	1.11(0.60-2.05)	0.528	1.29(0.58-2.87)	220	21	0.186	1.45(0.84-2.52)	0.097	2.07(0.88-4.90)
888.50~2684.10	140	7	0.978	1.01(0.43-2.36)	0.471	0.65(0.20-2.12)	370	39	0.046	1.60(1.01-2.55)	0.214	1.64(0.75-3.56)

Model1 is unadjusted; Model2 is adjusted for age, nationality, education level, monthly family income per capita , entry factory date, work categories, shift work, usage of dust proof masks, usage of cooling drinks, usage of noise proof earplugs, personal and family disease history, medication history, BMI, PA, smoking, drinking, and PDI scores.

Supplementary Table S9. Associations between occupational hazards and FBG trajectories by age in Group 1 and Group 2.

[illegible]

exposure,[mg/m ³ ·year]												
never exposed	432	18	—	1.00 (ref)	—	1.00 (ref)	684	54	—	1.00 (ref)	—	1.00 (ref)
59.22~	481	19	0.874	0.95(0.49-1.83)	0.847	0.94(0.49-1.80)	91	7	0.950	0.97(0.43-2.21)	0.652	0.81(0.32-2.04)
138.70~	313	14	0.846	1.07(0.53-2.19)	0.625	0.83(0.40-1.73)	244	21	0.747	1.09(0.65-1.84)	0.536	1.21(0.66-2.22)
271.30~	86	2	0.440	0.56(0.13-2.45)	0.277	0.47(0.12-1.83)	454	37	0.886	1.03(0.67-1.60)	0.715	1.09(0.68-1.78)
456.82~1464.48	24	3	0.095	3.00(0.83-10.89)	0.064	3.32(0.93-11.85)	503	40	0.973	1.01(0.66-1.54)	0.906	1.03(0.64-1.67)
cumulative high-temperature exposure,[°C·year]												
never exposed	320	12	—	1.00 (ref)	—	1.00 (ref)	613	34	—	1.00 (ref)	—	1.00 (ref)
374.44~	531	19	0.901	0.95(0.46-1.99)	0.442	0.75(0.35-1.58)	85	9	0.099	1.91(0.89-4.12)	0.056	2.31(0.98-5.44)
951.20~	349	18	0.402	1.38(0.65-2.90)	0.772	1.12(0.51-2.45)	258	25	0.042	1.75(1.02-2.99)	0.014	2.11(1.16-3.84)
2316.34~	108	6	0.443	1.48(0.54-4.04)	0.818	1.13(0.39-3.30)	487	32	0.504	1.19(0.72-1.95)	0.334	1.32(0.75-2.30)
3590.92~7608.06	28	1	0.963	0.95(0.12-7.60)	0.904	0.86(0.07-10.87)	533	59	0.002	2.00(1.29-3.09)	0.003	2.15(1.29-3.58)
cumulative CO exposure,[mg/m ³ ·year]												
never exposed	506	18	—	1.00 (ref)	—	1.00 (ref)	674	57	—	1.00 (ref)	—	1.00 (ref)
76.76~	435	20	0.439	1.29(0.68-2.48)	0.155	1.61(0.83-3.11)	119	7	0.379	0.70(0.31-1.56)	0.381	0.68(0.28-1.62)
277.72~	266	13	0.393	1.37(0.66-2.85)	0.224	1.60(0.75-3.41)	271	22	0.876	0.96(0.58-1.60)	0.997	1.00(0.58-1.74)
544.88~	113	4	0.993	1.00(0.33-3.00)	0.907	1.07(0.35-3.22)	418	28	0.329	0.79(0.50-1.27)	0.379	0.80(0.48-1.33)
888.50~2684.10	16	1	0.594	1.76(0.22-13.98)	0.205	3.78(0.48-29.55)	494	45	0.721	1.08(0.72-1.62)	0.752	1.08(0.68-1.71)

Model1 is unadjusted; Model2 is adjusted for age, nationality, education level, monthly family income per capita , entry factory date, work categories, shift work, usage of dust proof masks, usage of cooling drinks, usage of noise proof earplugs, personal and family disease history, medication history, BMI, PA, smoking, drinking, and PDI scores.

Supplementary Table S10. Associations between occupational hazards and FBG trajectories by age in Group 1 and Group 3.

subgroup	age <40						age ≥40					
	n group 1	n group 3	Model1		Model2		n group 1	n group 3	Model1		Model2	
			P- value	OR (95%CI)	P- value	OR (95%CI)			P- value	OR (95%CI)	P- value	OR (95%CI)
noise exposure status												
never	309	12	—	1.00 (ref)	—	1.00 (ref)	641	62	—	1.00 (ref)	—	1.00 (ref)
ever	146	5	0.816	0.88(0.31-2.55)	0.393	0.51(0.11-2.39)	321	29	0.772	0.93(0.59-1.48)	0.909	1.05(0.49-2.21)
current	881	28	0.568	0.82(0.41-1.63)	0.476	0.69(0.25-1.91)	1014	65	0.026	0.66(0.46-0.95)	0.944	0.98(0.52-1.84)
dust exposure status												
never	432	15	—	1.00 (ref)	—	1.00 (ref)	684	52	—	1.00 (ref)	—	1.00 (ref)
ever	108	8	0.093	2.13(0.88-5.16)	0.409	1.61(0.52-5.02)	249	13	0.238	0.69(0.37-1.28)	0.734	0.85(0.34-2.15)
current	796	22	0.502	0.80(0.41-1.55)	0.916	0.96(0.42-2.19)	1043	91	0.446	1.15(0.81-1.64)	0.137	1.57(0.87-2.86)
high-temperature exposure status												
never	320	10	—	1.00 (ref)	—	1.00 (ref)	613	55	—	1.00 (ref)	—	1.00 (ref)
ever	104	4	0.730	1.23(0.38-4.01)	0.353	0.45(0.08-2.46)	236	20	0.834	0.95(0.55-1.61)	0.760	1.16(0.44-3.06)
current	912	31	0.820	1.09(0.53-2.24)	0.692	0.84(0.35-2.00)	1127	81	0.222	0.80(0.56-1.14)	0.014	2.20(1.17-4.14)
CO exposure status												
never	506	14	—	1.00 (ref)	—	1.00 (ref)	674	54	—	1.00 (ref)	—	1.00 (ref)
ever	127	5	0.506	1.42(0.50-4.02)	0.788	1.18(0.35-3.98)	284	20	0.634	0.88(0.52-1.50)	0.752	1.13(0.54-2.34)
current	703	26	0.389	1.34(0.69-2.59)	0.366	1.50(0.63-3.58)	1018	82	0.976	1.01(0.70-1.44)	0.624	1.15(0.65-2.04)
cumulative noise exposure,[dB(A)·year]												
never exposed	309	12	—	1.00 (ref)	—	1.00 (ref)	641	62	—	1.00 (ref)	—	1.00 (ref)
33.64~	400	15	0.929	0.97(0.45-2.09)	0.600	0.75(0.26-2.18)	199	15	0.404	0.78(0.43-1.40)	0.636	0.79(0.30-2.09)
90.70~	260	7	0.448	0.69(0.27-1.79)	0.416	0.62(0.19-1.98)	330	25	0.321	0.78(0.48-1.27)	0.565	1.25(0.59-2.64)
93.56~	234	4	0.160	0.44(0.14-1.38)	0.171	0.41(0.12-1.47)	369	19	0.020	0.53(0.31-0.90)	0.796	0.90(0.42-1.95)
96.25~111.76	133	7	0.532	1.36(0.52-3.52)	0.479	0.62(0.16-2.35)	437	35	0.392	0.83(0.54-1.28)	0.930	1.03(0.50-2.12)
cumulative dust exposure,[mg/m ³ ·year]												
never exposed	432	15	—	1.00 (ref)	—	1.00 (ref)	684	52	—	1.00 (ref)	—	1.00 (ref)
59.22~	481	12	0.400	0.72(0.33-1.55)	0.842	1.09(0.46-2.62)	91	8	0.714	1.16(0.53-2.51)	0.138	2.15(0.78-5.92)
138.70~	313	14	0.504	1.29(0.61-2.71)	0.986	1.01(0.37-2.74)	244	12	0.185	0.65(0.34-1.23)	0.045	0.18(0.03-0.97)

271.30~	86	2	0.599	0.67(0.15-2.98)	0.681	0.71(0.14-3.60)	454	37	0.756	1.07(0.69-1.66)	0.079	1.81(0.93-3.51)
456.82~1464.48	24	2	0.263	2.40(0.52-11.10)	0.143	4.07(0.62-26.58)	503	47	0.325	1.23(0.82-1.85)	0.237	1.48(0.77-2.82)
cumulative high-temperature exposure,[°C·year]												
never exposed	320	10	—	1.00 (ref)	—	1.00 (ref)	613	55	—	1.00 (ref)	—	1.00 (ref)
374.44~	531	19	0.733	1.15(0.53-2.49)	0.678	0.82(0.32-2.09)	85	8	0.904	1.05(0.48-2.28)	0.118	2.52(0.79-8.05)
951.20~	349	11	0.985	1.01(0.42-2.41)	0.436	0.66(0.24-1.87)	258	10	0.017	0.43(0.22-0.86)	0.920	1.05(0.39-2.88)
2316.34~	108	3	0.860	0.89(0.24-3.29)	0.690	0.73(0.16-3.42)	487	35	0.323	0.80(0.52-1.24)	0.038	2.10(1.04-4.24)
3590.92~7608.06	28	2	0.301	2.29(0.48-10.95)	0.751	0.64(0.04-9.76)	533	48	0.986	1.00(0.67-1.50)	0.028	2.19(1.09-4.41)
cumulative CO exposure,[mg/m ³ ·year]												
never exposed	506	14	—	1.00 (ref)	—	1.00 (ref)	674	54	—	1.00 (ref)	—	1.00 (ref)
76.76~	435	13	0.844	1.08(0.50-2.32)	0.262	1.64(0.69-3.88)	119	7	0.455	0.73(0.33-1.65)	0.851	0.89(0.26-3.00)
277.72~	266	13	0.147	1.77(0.82-3.81)	0.877	1.09(0.38-3.15)	271	16	0.298	0.74(0.41-1.31)	0.969	0.98(0.42-2.29)
544.88~	113	5	0.377	1.60(0.57-4.53)	0.699	1.31(0.33-5.17)	418	33	0.949	0.99(0.63-1.55)	0.151	1.61(0.84-3.07)
888.50~2684.10	16	0	0.472	1.16(0.77-1.75)	0.797	0.58(0.01-35.97)	494	46	0.472	1.16(0.77-1.75)	0.912	0.96(0.50-1.86)

Model1 is unadjusted; Model2 is adjusted for age, nationality, education level, monthly family income per capita , entry factory date, work categories, shift work, usage of dust proof masks, usage of cooling drinks, usage of noise proof earplugs, personal and family disease history, medication history, BMI, PA, smoking, drinking, and PDI scores.

Supplementary Table S11. Associations between occupational hazards and FBG trajectories by education level in Group 1 and Group 2.

subgroup	junior high school and below						high school and above					
	n	n	Model1		Model2		n	n	Model1		Model2	
	group 1	group 2	P-value	OR (95%CI)	P-value	OR (95%CI)	group 1	group 2	P-value	OR (95%CI)	P-value	OR (95%CI)
noise exposure status												
never	169	24	—	1.00 (ref)	—	1.00 (ref)	781	32	—	1.00 (ref)	—	1.00 (ref)
ever	108	12	0.512	0.78(0.38-1.63)	0.354	0.65(0.26-1.62)	359	24	0.078	1.63(0.95-2.81)	0.091	1.59(0.93-2.72)
current	351	36	0.245	0.72(0.42-1.25)	0.720	0.87(0.41-1.86)	1544	87	0.132	1.38(0.91-2.08)	0.638	1.12(0.70-1.81)
dust exposure status												
never	220	21	—	1.00 (ref)	—	1.00 (ref)	896	51	—	1.00 (ref)	—	1.00 (ref)
ever	84	9	0.783	1.12(0.49-2.55)	0.705	0.82(0.28-2.35)	273	14	0.736	0.90(0.49-1.65)	0.517	0.83(0.46-1.48)
current	324	42	0.276	1.36(0.78-2.36)	0.296	1.47(0.71-3.04)	1515	78	0.587	0.91(0.63-1.30)	0.472	0.87(0.58-1.29)
high-temperature exposure status												
never	189	16	—	1.00 (ref)	—	1.00 (ref)	744	30	—	1.00 (ref)	—	1.00 (ref)
ever	88	8	0.875	1.07(0.44-2.60)	0.937	0.96(0.31-2.91)	252	14	0.334	1.38(0.72-2.64)	0.649	1.16(0.61-2.23)
current	351	48	0.113	1.62(0.89-2.92)	0.162	1.71(0.81-3.64)	1688	99	0.079	1.46(0.96-2.21)	0.111	1.44(0.92-2.24)
CO exposure status												
never	232	30	—	1.00 (ref)	—	1.00 (ref)	948	45	—	1.00 (ref)	—	1.00 (ref)
ever	110	14	0.963	0.98(0.50-1.93)	0.937	0.96(0.31-2.91)	301	22	0.108	1.54(0.91-2.61)	0.162	1.44(0.86-2.41)
current	286	28	0.316	0.76(0.44-1.30)	0.162	1.71(0.81-3.64)	1435	76	0.570	1.12(0.77-1.63)	0.449	1.17(0.78-1.78)
cumulative noise exposure,[dB(A)·year]												
never exposed	169	24	—	1.00 (ref)	—	1.00 (ref)	781	32	—	1.00 (ref)	—	1.00 (ref)
33.64~	66	6	0.352	0.64(0.25-1.64)	0.155	0.40(0.11-1.42)	533	27	0.427	1.24(0.73-2.09)	0.317	1.33(0.76-2.31)
90.70~	111	9	0.171	0.57(0.26-1.27)	0.267	0.58(0.22-1.52)	479	31	0.077	1.58(0.95-2.62)	0.158	1.48(0.86-2.54)
93.56~	140	16	0.526	0.81(0.41-1.57)	0.927	0.96(0.42-2.21)	463	20	0.856	1.05(0.60-1.87)	0.606	0.85(0.47-1.56)
96.25~111.76	142	17	0.612	0.84(0.44-1.63)	0.761	1.15(0.48-2.76)	428	33	0.013	1.88(1.14-3.10)	0.156	1.48(0.86-2.52)
cumulative dust exposure,[mg/m ³ ·year]												
never exposed	220	21	—	1.00 (ref)	—	1.00 (ref)	896	51	—	1.00 (ref)	—	1.00 (ref)
59.22~	48	4	0.811	0.87(0.29-2.66)	0.867	0.89(0.21-3.67)	524	22	0.243	0.74(0.44-1.23)	0.854	0.95(0.55-1.65)
138.70~	73	8	0.752	1.15(0.49-2.70)	0.821	0.87(0.26-2.87)	484	27	0.934	0.98(0.61-1.58)	0.994	1.00(0.60-1.65)

271.30~	138	17	0.458	1.29(0.66-2.53)	0.540	1.29(0.57-2.93)	402	22	0.881	0.96(0.58-1.61)	0.301	0.76(0.45-1.28)
456.82~1464.48	149	22	0.177	1.55(0.82-2.91)	0.287	1.55(0.69-3.49)	378	21	0.927	0.98(0.58-1.65)	0.257	0.72(0.41-1.27)
cumulative high-temperature exposure,[°C·year]												
never exposed	189	16	—	1.00 (ref)	—	1.00 (ref)	744	30	—	1.00 (ref)	—	1.00 (ref)
374.44~	34	3	0.950	1.04(0.29-3.77)	0.694	0.69(0.11-4.39)	582	25	0.819	1.07(0.62-1.83)	0.586	1.18(0.65-2.15)
951.20~	65	6	0.863	1.09(0.41-2.90)	0.479	1.52(0.48-4.83)	542	37	0.037	1.69(1.03-2.78)	0.037	1.72(1.03-2.87)
2316.34~	117	12	0.631	1.21(0.55-2.65)	0.853	0.91(0.34-2.47)	478	26	0.275	1.35(0.79-2.31)	0.653	1.14(0.65-1.97)
3590.92~7608.06	223	35	0.052	1.85(1.00-3.46)	0.071	2.06(0.94-4.53)	338	25	0.029	1.83(1.06-3.17)	0.094	1.64(0.92-2.94)
cumulative CO exposure,[mg/m ³ ·year]												
never exposed	232	30	—	1.00 (ref)	—	1.00 (ref)	948	45	—	1.00 (ref)	—	1.00 (ref)
76.76~	42	6	0.835	1.11(0.43-2.82)	0.400	1.70(0.50-5.80)	512	21	0.588	0.86(0.51-1.47)	0.762	1.09(0.63-1.87)
277.72~	93	8	0.328	0.67(0.29-1.51)	0.476	0.70(0.26-1.87)	444	27	0.322	1.28(0.79-2.09)	0.328	1.28(0.78-2.11)
544.88~	135	8	0.058	0.46(0.20-1.03)	0.014	0.28(0.10-0.77)	396	24	0.347	1.28(0.77-2.12)	0.431	1.23(0.73-2.08)
888.50~2684.10	126	20	0.507	1.23(0.67-2.25)	0.954	0.98(0.47-2.06)	384	26	0.161	1.43(0.87-2.35)	0.178	1.46(0.84-2.54)

Model1 is unadjusted; Model2 is adjusted for age, nationality, education level, monthly family income per capita , entry factory date, work categories, shift work, usage of dust proof masks, usage of cooling drinks, usage of noise proof earplugs, personal and family disease history, medication history, BMI, PA, smoking, drinking, and PDI scores.

Supplementary Table S12. Associations between occupational hazards and FBG trajectories by education level in Group 1 and Group 3.

subgroup	junior high school and below						high school and above					
	n	n	Model1		Model2		n	n	Model1		Model2	
	group 1	group 3	P-value	OR (95%CI)	P-value	OR (95%CI)	group 1	group 3	P-value	OR (95%CI)	P-value	OR (95%CI)
noise exposure status												
never	169	23	—	1.00 (ref)	—	1.00 (ref)	781	51	—	1.00 (ref)	—	1.00 (ref)
ever	108	14	0.893	0.95(0.47-1.93)	0.546	1.46(0.43-4.99)	359	20	0.558	0.85(0.50-1.45)	0.567	0.80(0.37-1.72)
current	351	17	0.002	0.36(0.19-0.68)	0.068	0.34(0.10-1.09)	1544	76	0.129	0.75(0.52-1.09)	0.560	1.20(0.66-2.18)
dust exposure status												
never	220	14	—	1.00 (ref)	—	1.00 (ref)	896	53	—	1.00 (ref)	—	1.00 (ref)
ever	84	7	0.575	1.31(0.51-3.36)	0.107	4.01(0.74-21.77)	273	14	0.643	0.87(0.47-1.59)	0.948	0.98(0.46-2.06)
current	324	33	0.155	1.60(0.84-3.06)	0.024	4.31(1.21-15.39)	1515	80	0.533	0.89(0.63-1.28)	0.882	1.04(0.62-1.76)
high-temperature exposure status												
never	189	16	—	1.00 (ref)	—	1.00 (ref)	744	49	—	1.00 (ref)	—	1.00 (ref)
ever	88	9	0.665	1.21(0.51-2.84)	0.526	1.60(0.37-6.91)	252	15	0.739	0.90(0.50-1.64)	0.648	0.81(0.32-2.04)
current	351	29	0.940	0.98(0.52-1.84)	0.650	1.30(0.42-4.07)	1688	83	0.115	0.75(0.52-1.07)	0.259	1.37(0.79-2.37)
CO exposure status												
never	232	13	—	1.00 (ref)	—	1.00 (ref)	948	55	—	1.00 (ref)	—	1.00 (ref)
ever	110	8	0.574	1.30(0.52-3.22)	0.526	1.60(0.37-6.91)	301	17	0.925	0.97(0.56-1.70)	0.980	0.99(0.49-1.99)
current	286	33	0.033	2.06(1.06-4.00)	0.650	1.30(0.42-4.07)	1435	75	0.567	0.90(0.63-1.29)	0.658	1.12(0.67-1.89)
cumulative noise exposure,[dB(A)·year]												
never exposed	169	23	—	1.00 (ref)	—	1.00 (ref)	781	51	—	1.00 (ref)	—	1.00 (ref)
33.64~	66	7	0.584	0.78(0.32-1.90)	0.954	0.96(0.21-4.28)	533	23	0.107	0.66(0.40-1.09)	0.952	1.02(0.50-2.09)
90.70~	111	9	0.208	0.60(0.27-1.34)	0.621	0.68(0.15-3.11)	479	23	0.233	0.74(0.44-1.22)	0.778	1.10(0.56-2.20)
93.56~	140	8	0.042	0.42(0.18-0.97)	0.410	0.58(0.16-2.13)	463	15	0.019	0.50(0.28-0.89)	0.598	0.82(0.39-1.72)
96.25~111.76	142	7	0.023	0.36(0.15-0.87)	0.221	0.43(0.11-1.66)	428	35	0.323	1.25(0.80-1.96)	0.620	1.19(0.60-2.37)
cumulative dust exposure,[mg/m ³ ·year]												
never exposed	220	14	—	1.00 (ref)	—	1.00 (ref)	896	53	—	1.00 (ref)	—	1.00 (ref)
59.22~	48	3	0.978	0.98(0.27-3.55)	0.036	9.40(1.16-75.94)	524	17	0.035	0.55(0.31-0.96)	0.797	1.10(0.54-2.23)
138.70~	73	6	0.613	1.29(0.48-3.48)	0.821	1.29(0.15-11.33)	484	20	0.181	0.70(0.41-1.18)	0.616	0.83(0.40-1.72)

271.30~	138	14	0.236	1.59(0.74-3.45)	0.007	6.98(1.71-28.55)	402	25	0.841	1.05(0.64-1.72)	0.906	1.04(0.53-2.07)
456.82~1464.48	149	17	0.121	1.79(0.86-3.75)	0.062	3.86(0.93-15.97)	378	32	0.122	1.43(0.91-2.26)	0.668	1.16(0.59-2.26)
cumulative high-temperature exposure,[°C·year]												
never exposed	189	16	—	1.00 (ref)	—	1.00 (ref)	744	49	—	1.00 (ref)	—	1.00 (ref)
374.44~	34	5	0.311	1.74(0.60-5.06)	0.110	4.78(0.70-32.49)	582	22	0.034	0.57(0.34-0.96)	0.878	1.06(0.50-2.24)
951.20~	65	3	0.347	0.55(0.15-1.93)	0.589	0.50(0.04-6.03)	542	18	0.015	0.50(0.29-0.88)	0.918	1.04(0.51-2.12)
2316.34~	117	6	0.309	0.61(0.23-1.59)	0.722	0.75(0.16-3.59)	478	32	0.944	1.02(0.64-1.61)	0.128	1.65(0.87-3.13)
3590.92~7608.06	223	24	0.477	1.27(0.66-2.46)	0.380	1.67(0.53-5.24)	338	26	0.537	1.17(0.71-1.91)	0.436	1.34(0.64-2.83)
cumulative CO exposure,[mg/m ³ ·year]												
never exposed	232	13	—	1.00 (ref)	—	1.00 (ref)	948	55	—	1.00 (ref)	—	1.00 (ref)
76.76~	42	4	0.373	1.70(0.53-5.46)	0.221	2.99(0.52-17.27)	512	16	0.032	0.54(0.31-0.95)	0.731	1.13(0.57-2.21)
277.72~	93	10	0.137	1.92(0.81-4.53)	0.404	1.96(0.41-9.47)	444	19	0.264	0.74(0.43-1.26)	0.941	0.97(0.49-1.93)
544.88~	135	9	0.697	1.19(0.5-2.86)	0.398	1.74(0.48-6.30)	396	29	0.326	1.26(0.79-2.01)	0.383	1.33(0.70-2.52)
888.50~2684.10	126	18	0.014	2.55(1.21-5.37)	0.984	1.01(0.27-3.78)	384	28	0.341	1.26(0.79-2.01)	0.903	0.96(0.47-1.96)

Model1 is unadjusted; Model2 is adjusted for age, nationality, education level, monthly family income per capita , entry factory date, work categories, shift work, usage of dust proof masks, usage of cooling drinks, usage of noise proof earplugs, personal and family disease history, medication history, BMI, PA, smoking, drinking, and PDI scores.

Supplementary Table S13. Associations between occupational hazards and FBG trajectories by entry factory date in Group 1 and Group 2.

subgroup	before 1998						after 1998					
	n group 1	n grou p2	Model1		Model2		n group 1	n grou p2	Model1		Model2	
			P- value	OR (95%CI)	P- value	OR (95%CI)			P- value	OR (95%CI)	P- value	OR (95%CI)
noise exposure status												
never	657	46	—	1.00 (ref)	—	1.00 (ref)	293	10	—	1.00 (ref)	—	1.00 (ref)
ever	275	19	0.962	0.99(0.57-1.72)	0.887	1.04(0.60-1.82)	192	17	0.020	2.59(1.16-5.79)	0.025	2.48(1.12-5.48)
current	1056	83	0.544	1.12(0.77-1.63)	0.460	1.18(0.76-1.86)	839	40	0.353	1.40(0.69-2.83)	0.781	1.11(0.52-2.37)
dust exposure status												
never	722	55	—	1.00 (ref)	—	1.00 (ref)	394	17	—	1.00 (ref)	—	1.00 (ref)
ever	210	10	0.183	0.63(0.31-1.25)	0.156	0.62(0.32-1.20)	147	13	0.060	2.05(0.97-4.32)	0.069	1.99(0.95-4.18)
current	1056	83	0.862	1.03(0.72-1.47)	0.707	1.08(0.73-1.61)	783	37	0.761	1.10(0.61-1.97)	0.908	0.97(0.53-1.75)
high-temperature exposure status												
never	623	34	—	1.00 (ref)	—	1.00 (ref)	310	12	—	1.00 (ref)	—	1.00 (ref)
ever	210	14	0.541	1.22(0.64-2.32)	0.686	1.14(0.60-2.17)	130	8	0.322	1.59(0.64-3.98)	0.949	1.03(0.42-2.56)
current	1155	100	0.024	1.59(1.06-2.37)	0.022	1.66(1.08-2.55)	884	47	0.336	1.37(0.72-2.62)	0.378	1.35(0.70-2.61)
CO exposure status												
never	687	54	—	1.00 (ref)	—	1.00 (ref)	493	21	—	1.00 (ref)	—	1.00 (ref)
ever	251	21	0.816	1.06(0.63-1.80)	0.994	1.00(0.59-1.70)	160	15	0.024	2.20(1.11-4.37)	0.008	2.48(1.27-4.86)
current	1050	73	0.510	0.88(0.61-1.27)	0.454	0.86(0.58-1.28)	671	31	0.779	1.09(0.62-1.91)	0.476	1.25(0.67-2.34)
cumulative noise exposure,[dB(A)·year]												
never exposed	657	46	—	1.00 (ref)	—	1.00 (ref)	293	10	—	1.00 (ref)	—	1.00 (ref)
33.64~	200	17	0.511	1.21(0.68-2.17)	0.281	1.39(0.76-2.55)	399	16	0.694	1.18(0.53-2.63)	0.395	1.41(0.64-3.11)
90.70~	306	16	0.328	0.75(0.42-1.34)	0.572	0.84(0.47-1.52)	284	24	0.019	2.48(1.16-5.27)	0.009	2.83(1.29-6.18)
93.56~	385	26	0.887	0.97(0.59-1.59)	0.831	0.94(0.55-1.63)	218	10	0.517	1.34(0.55-3.29)	0.923	1.05(0.43-2.54)
96.25~111.76	440	43	0.131	1.40(0.91-2.15)	0.134	1.45(0.89-2.37)	130	7	0.366	1.58(0.59-4.24)	0.634	1.28(0.47-3.47)
cumulative dust exposure,[mg/m ³ ·year]												
never exposed	722	55	—	1.00 (ref)	—	1.00 (ref)	394	17	—	1.00 (ref)	—	1.00 (ref)
59.22~	82	6	0.928	0.96(0.40-2.30)	0.788	0.88(0.34-2.26)	490	20	0.869	0.95(0.49-1.83)	0.935	1.03(0.54-1.96)
138.70~	255	18	0.786	0.93(0.53-1.61)	0.715	1.12(0.60-2.09)	302	17	0.449	1.31(0.66-2.60)	0.743	1.13(0.55-2.30)

271.30~	442	30	0.623	0.89(0.56-1.41)	0.557	0.86(0.52-1.43)	98	9	0.077	2.13(0.92-4.92)	0.119	2.00(0.84-4.78)
456.82~1464.48	487	39	0.818	1.05(0.69-1.61)	0.831	0.95(0.58-1.55)	40	4	0.147	2.32(0.74-7.22)	0.267	1.96(0.60-6.44)
cumulative high-temperature exposure,[°C·year]												
never exposed	623	34	—	1.00 (ref)	—	1.00 (ref)	310	12	—	1.00 (ref)	—	1.00 (ref)
374.44~	85	7	0.340	1.51(0.65-3.51)	0.155	1.88(0.79-4.47)	531	21	0.954	1.02(0.50-2.11)	0.897	1.05(0.51-2.16)
951.20~	302	22	0.307	1.34(0.77-2.32)	0.105	1.60(0.91-2.81)	305	21	0.120	1.78(0.86-3.68)	0.107	1.85(0.88-3.91)
2316.34~	455	32	0.318	1.29(0.78-2.12)	0.353	1.27(0.77-2.12)	140	6	0.842	1.11(0.41-3.01)	0.695	0.82(0.29-2.27)
3590.92~7608.06	523	53	0.007	1.86(1.19-2.90)	0.030	1.70(1.05-2.76)	38	7	0.002	4.76(1.77- 12.82)	<0.00 1	7.53(2.48-22.86)
cumulative CO exposure,[mg/m ³ ·year]												
never exposed	687	54	—	1.00 (ref)	—	1.00 (ref)	493	21	—	1.00 (ref)	—	1.00 (ref)
76.76~	113	6	0.375	0.68(0.28-1.61)	0.557	0.78(0.34-1.79)	441	21	0.724	1.12(0.60-2.08)	0.212	1.50(0.80-2.82)
277.72~	275	21	0.914	0.97(0.58-1.64)	0.901	0.97(0.57-1.65)	262	14	0.521	1.25(0.63-2.51)	0.312	1.46(0.70-3.05)
544.88~	429	25	0.231	0.74(0.46-1.21)	0.248	0.75(0.46-1.22)	102	7	0.289	1.61(0.67-3.89)	0.356	1.55(0.61-3.89)
888.50~2684.10	484	42	0.644	1.10(0.73-1.68)	0.897	1.03(0.66-1.61)	26	4	0.027	3.61(1.16- 11.29)	0.001	7.75(2.31-25.94)

Model1 is unadjusted; Model2 is adjusted for age, nationality, education level, monthly family income per capita , entry factory date, work categories, shift work, usage of dust proof masks, usage of cooling drinks, usage of noise proof earplugs, personal and family disease history, medication history, BMI, PA, smoking, drinking, and PDI scores.

Supplementary Table S14. Associations between occupational hazards and FBG trajectories by entry factory date in Group 1 and Group 3.

subgroup	before 1998						after 1998					
	n	n	Model1		Model2		n	n	Model1		Model2	
	group 1	group 3	P-value	OR (95%CI)	P-value	OR (95%CI)	group 1	group 3	P-value	OR (95%CI)	P-value	OR (95%CI)
noise exposure status												
never	657	59	—	1.00 (ref)	—	1.00 (ref)	293	15	—	1.00 (ref)	—	1.00 (ref)
ever	275	26	0.834	1.05(0.65-1.71)	0.972	1.01(0.51-2.01)	192	8	0.645	0.81(0.34-1.96)	0.286	0.50(0.14-1.78)
current	1056	69	0.084	0.73(0.51-1.04)	0.960	1.02(0.57-1.81)	839	24	0.083	0.56(0.29-1.08)	0.436	0.68(0.26-1.78)
dust exposure status												
never	722	56	—	1.00 (ref)	—	1.00 (ref)	394	11	—	1.00 (ref)	—	1.00 (ref)
ever	210	10	0.166	0.61(0.31-1.22)	0.628	0.82(0.36-1.86)	147	11	0.024	2.68(1.14-6.31)	0.168	2.16(0.72-6.44)
current	1056	88	0.686	1.07(0.76-1.52)	0.511	1.19(0.71-1.99)	783	25	0.715	1.14(0.56-2.35)	0.536	1.32(0.55-3.21)
high-temperature exposure status												
never	623	55	—	1.00 (ref)	—	1.00 (ref)	310	10	—	1.00 (ref)	—	1.00 (ref)
ever	210	19	0.930	1.03(0.60-1.77)	0.988	1.01(0.45-2.28)	130	5	0.752	1.19(0.40-3.56)	0.540	0.61(0.13-2.92)
current	1155	80	0.183	0.79(0.55-1.12)	0.292	1.33(0.78-2.24)	884	32	0.754	1.12(0.55-2.31)	0.846	1.09(0.44-2.70)
CO exposure status												
never	687	60	—	1.00 (ref)	—	1.00 (ref)	493	8	—	1.00 (ref)	—	1.00 (ref)
ever	251	20	0.733	0.91(0.54-1.54)	0.988	1.01(0.51-1.97)	160	5	0.256	1.93(0.62-5.97)	0.623	1.35(0.41-4.49)
current	1050	74	0.235	0.81(0.57-1.15)	0.999	1.00(0.60-1.66)	671	34	0.004	3.12(1.43-6.80)	0.189	1.84(0.74-4.56)
cumulative noise exposure,[dB(A)·year]												
never exposed	657	59	—	1.00 (ref)	—	1.00 (ref)	293	15	—	1.00 (ref)	—	1.00 (ref)
33.64~	200	14	0.419	0.78(0.43-1.43)	0.944	0.97(0.42-2.23)	399	16	0.506	0.78(0.38-1.61)	0.530	0.73(0.28-1.94)
90.70~	306	24	0.591	0.87(0.53-1.43)	0.801	1.09(0.55-2.18)	284	8	0.180	0.55(0.23-1.32)	0.428	0.64(0.21-1.94)
93.56~	385	18	0.018	0.52(0.30-0.90)	0.790	0.91(0.45-1.83)	218	5	0.126	0.45(0.16-1.25)	0.179	0.44(0.14-1.45)
96.25~111.76	440	39	0.952	0.99(0.65-1.51)	0.849	1.07(0.56-2.03)	130	3	0.214	0.45(0.13-1.58)	0.287	0.46(0.11-1.92)
cumulative dust exposure,[mg/m ³ ·year]												
never exposed	722	56	—	1.00 (ref)	—	1.00 (ref)	394	11	—	1.00 (ref)	—	1.00 (ref)
59.22~	82	8	0.562	1.26(0.58-2.73)	0.401	1.60(0.54-4.76)	490	12	0.757	0.88(0.38-2.01)	0.358	1.52(0.62-3.74)
138.70~	255	11	0.082	0.56(0.29-1.08)	0.098	0.34(0.09-1.23)	302	15	0.154	1.78(0.81-3.93)	0.662	1.27(0.43-3.74)

271.30~	442	32	0.764	0.93(0.60-1.46)	0.410	1.33(0.67-2.64)	98	7	0.058	2.56(0.97-6.77)	0.180	2.46(0.66-9.17)
456.82~1464.48	487	47	0.289	1.24(0.83-1.86)	0.275	1.42(0.76-2.68)	40	2	0.459	1.79(0.38-8.37)	0.920	1.12(0.12-10.13)
cumulative high-temperature exposure,[°C·year]												
never exposed	623	55	—	1.00 (ref)	—	1.00 (ref)	310	10	—	1.00 (ref)	—	1.00 (ref)
374.44~	85	10	0.429	1.33(0.66-2.71)	0.448	1.49(0.53-4.21)	531	17	0.985	0.99(0.45-2.20)	0.894	0.94(0.36-2.45)
951.20~	302	11	0.009	0.41(0.21-0.80)	0.869	0.94(0.43-2.03)	305	10	0.971	1.02(0.42-2.48)	0.922	0.95(0.31-2.88)
2316.34~	455	31	0.266	0.77(0.49-1.22)	0.251	1.42(0.78-2.60)	140	7	0.384	1.55(0.58-4.16)	0.862	0.88(0.19-3.96)
3590.92~7608.06	523	47	0.932	1.02(0.68-1.53)	0.415	1.29(0.70-2.36)	38	3	0.188	2.45(0.65-9.29)	0.144	3.65(0.64-20.75)
cumulative CO exposure,[mg/m ³ ·year]												
never exposed	687	60	—	1.00 (ref)	—	1.00 (ref)	493	8	—	1.00 (ref)	—	1.00 (ref)
76.76~	113	3	0.047	0.30(0.09-0.99)	0.709	0.82(0.28-2.38)	441	17	0.046	2.38(1.02-5.56)	0.179	1.84(0.76-4.45)
277.72~	275	16	0.162	0.67(0.38-1.18)	0.832	0.93(0.45-1.91)	262	13	0.014	3.06(1.25-7.47)	0.490	1.47(0.49-4.36)
544.88~	429	31	0.409	0.83(0.53-1.30)	0.539	1.20(0.67-2.16)	102	7	0.006	4.23(1.50-11.92)	0.471	1.66(0.42-6.56)
888.50~2684.10	484	44	0.847	1.04(0.69-1.56)	0.857	0.95(0.53-1.71)	26	2	0.056	4.74(0.96-23.45)	0.816	0.67(0.02-19.99)

Model1 is unadjusted; Model2 is adjusted for age, nationality, education level, monthly family income per capita , entry factory date, work categories, shift work, usage of dust proof masks, usage of cooling drinks, usage of noise proof earplugs, personal and family disease history, medication history, BMI, PA, smoking, drinking, and PDI scores.

Supplementary Table S15. Associations between occupational hazards and FBG trajectories by shift work in Group 1 and Group 2.

[illegible]

never exposed	250	15	—	1.00 (ref)	—	1.00 (ref)	159	9	—	1.00 (ref)	—	1.00 (ref)	541	32	—	1.00 (ref)	—	1.00 (ref)
33.64~	100	4	0.4 81	0.67(0.2 2-2.06)	0.9 73	0.98(0.3 1-3.13)	100	7	0.6 83	1.24(0.45 -3.43)	0.6 56	1.26(0.45 -3.51)	399	22	0.8 05	0.93(0.5 3-1.63)	0.4 91	1.23(0.6 8-2.24)
90.70~	68	4	0.9 73	0.98(0.3 2-3.05)	0.7 11	1.23(0.4 1-3.66)	85	6	0.6 85	1.25(0.43 -3.62)	0.5 93	1.34(0.46 -3.92)	437	30	0.5 70	1.16(0.6 9-1.94)	0.4 23	1.26(0.7 2-2.20)
93.56~	53	1	0.2 68	0.31(0.0 4-2.43)	0.2 57	0.40(0.0 8-1.95)	67	5	0.6 32	1.32(0.43 -4.08)	0.6 49	1.30(0.42 -4.05)	483	30	0.8 52	1.05(0.6 3-1.75)	0.9 10	1.03(0.5 9-1.80)
96.25~111.76	71	6	0.4 95	1.41(0.5 3-3.76)	0.4 83	1.46(0.5 1-4.19)	72	6	0.4 79	1.47(0.51 -4.29)	0.3 74	1.63(0.55 -4.81)	427	38	0.1 00	1.51(0.9 2-2.45)	0.3 26	1.32(0.7 6-2.30)
cumulative dust exposure,[mg/m ³ ·year]																		
never exposed	217	12	—	1.00 (ref)	—	1.00 (ref)	128	9	—	1.00 (ref)	—	1.00 (ref)	771	51	—	1.00 (ref)	—	1.00 (ref)
59.22~	100	4	0.5 83	0.72(0.2 3-2.30)	0.7 99	0.85(0.2 5-2.89)	82	3	0.3 38	0.52(0.14 -1.98)	0.3 56	0.53(0.14 -2.03)	390	19	0.2 68	0.74(0.4 3-1.27)	0.8 29	1.07(0.6 0-1.90)
138.70~	49	3	0.8 78	1.11(0.3 0-4.07)	0.9 53	1.04(0.2 7-3.96)	76	5	0.9 08	0.94(0.30 -2.90)	0.8 68	0.91(0.29 -2.82)	432	27	0.8 17	0.95(0.5 8-1.53)	0.5 74	1.16(0.7 0-1.93)
271.30~	76	2	0.3 38	0.48(0.1 0-2.18)	0.2 00	0.44(0.1 2-1.55)	101	6	0.7 57	0.85(0.29 -2.45)	0.7 30	0.83(0.28 -2.42)	363	31	0.2 80	1.29(0.8 1-2.05)	0.6 06	1.14(0.7 0-1.86)
456.82~1464.48	100	9	0.2 87	1.63(0.6 6-3.99)	0.6 79	1.23(0.4 6-3.29)	96	10	0.4 12	1.48(0.58 -3.79)	0.3 91	1.51(0.59 -3.89)	331	24	0.7 20	1.10(0.6 6-1.81)	0.6 85	0.89(0.5 1-1.55)
cumulative high-temperature exposure,[°C·year]																		
never exposed	255	14	—	1.00 (ref)	—	1.00 (ref)	160	6	—	1.00 (ref)	—	1.00 (ref)	518	26	—	1.00 (ref)	—	1.00 (ref)
374.44~	94	2	0.2 16	0.39(0.0 9-1.74)	0.6 59	1.32(0.3 9-4.47)	75	4	0.5 94	1.42(0.39 -5.19)	0.5 59	1.47(0.40 -5.41)	447	22	0.9 47	0.98(0.5 5-1.75)	0.7 31	1.12(0.5 9-2.12)
951.20~	54	3	0.9 86	1.01(0.2 8-3.64)	0.9 58	0.97(0.2 9-3.19)	86	6	0.2 95	1.86(0.58 -5.94)	0.2 80	1.9(0.59- 6.12)	467	34	0.1 66	1.45(0.8 6-2.45)	0.0 89	1.61(0.9 3-2.79)
2316.34~	65	5	0.5 32	1.40(0.4 9-4.03)	0.1 92	2.01(0.7 0-5.75)	93	6	0.3 59	1.72(0.54 -5.49)	0.4 16	1.62(0.51 -5.20)	437	27	0.4 62	1.23(0.7 1-2.14)	0.8 80	1.05(0.5 9-1.86)
3590.92~7608.06	74	6	0.4 41	1.48(0.5 5-3.98)	0.5 09	1.41(0.5 1-3.90)	69	11	0.0 06	4.25(1.51 -11.96)	0.0 04	4.75(1.67 -13.51)	418	43	0.0 05	2.05(1.2 4-3.39)	0.0 47	1.74(1.0 1-3.01)
cumulative CO exposure,[mg/m ³ ·year]																		
never exposed	179	15	—	1.00 (ref)	—	1.00 (ref)	127	8	—	1.00 (ref)	—	1.00 (ref)	874	52	—	1.00 (ref)	—	1.00 (ref)

76.76～	105	1	0.0 37	0.11(0.0 2-0.87)	0.2 14	0.47(0.1 4-1.55)	84	7	0.6 02	1.32(0.46 -3.79)	0.2 14	2.17(0.64 -7.40)	365	19	0.6 27	0.88(0.5 1-1.50)	0.9 13	1.03(0.5 9-1.79)
277.72～	60	6	0.7 27	1.19(0.4 4-3.21)	0.5 83	1.34(0.4 7-3.82)	79	3	0.4 65	0.60(0.16 -2.34)	0.4 70	0.60(0.15 -2.39)	398	26	0.7 06	1.10(0.6 8-1.78)	0.6 38	1.13(0.6 9-1.85)
544.88～	79	3	0.2 21	0.45(0.1 3-1.61)	0.1 24	0.40(0.1 2-1.29)	92	5	0.8 01	0.86(0.27 -2.72)	0.6 89	0.79(0.25 -2.54)	360	24	0.6 55	1.12(0.6 8-1.85)	0.9 24	1.03(0.6 1-1.72)
888.50～2684.10	119	5	0.1 93	0.50(0.1 8-1.42)	0.0 43	0.35(0.1 2-0.97)	101	10	0.3 59	1.57(0.60 -4.13)	0.6 18	1.29(0.48 -3.46)	290	31	0.0 13	1.80(1.1 3-2.86)	0.0 19	1.85(1.1 1-3.11)

Model1 is unadjusted; Model2 is adjusted for age, nationality, education level, monthly family income per capita , entry factory date, work categories, shift work, usage of dust proof masks, usage of cooling drinks, usage of noise proof earplugs, personal and family disease history, medication history, BMI, PA, smoking, drinking, and PDI scores.

Supplementary Table S16. Associations between occupational hazards and FBG trajectories by shift work in Group 1 and Group 3.

subgroup	never shift								ever shift				current shift							
	n grou p1	n grou p3	Model1		Model2		n grou p1	n grou p3	Model1		Model2		n grou p1	n grou p3	Model1		Model2			
			P- valu e	OR (95%CI)	P- valu e	OR (95%CI)			P- valu e	OR (95%CI)	P- valu e	OR (95%CI)			P- valu e	OR (95%CI)	P- valu e	OR (95%CI)		
noise exposure status																				
never	250	7	—	1.00 (ref)	—	1.00 (ref)	159	19	—	1.00 (ref)	—	1.00 (ref)	541	48	—	1.00 (ref)	—	1.00 (ref)		
ever	83	6	0.0 96	2.58(0.84 -7.90)	0.2 80	1.95(0.58 -6.54)	127	13	0.6 83	0.86(0.4 1-1.80)	0.1 82	0.25(0.0 3-1.92)	257	15	0.1 70	0.66(0.3 6-1.20)	0.4 32	0.72(0.3 2-1.63)		
current	209	19	0.0 09	3.25(1.34 -7.87)	0.0 07	4.18(1.48 -11.84)	197	13	0.1 14	0.55(0.2 7-1.15)	0.1 59	0.26(0.0 4-1.69)	1489	61	<0. 001	0.46(0.3 1-0.68)	0.3 43	0.74(0.4 0-1.38)		
dust exposure status																				
never	217	16	—	1.00 (ref)	—	1.00 (ref)	128	10	—	1.00 (ref)	—	1.00 (ref)	771	41	—	1.00 (ref)	—	1.00 (ref)		
ever	44	3	0.9 04	0.93(0.26 -3.31)	0.7 91	1.23(0.27 -5.73)	81	5	0.6 77	0.79(0.2 6-2.40)	0.6 66	0.78(0.2 6-2.38)	232	13	0.8 73	1.05(0.5 6-2.00)	0.5 30	1.28(0.5 9-2.77)		
current	281	13	0.2 25	0.63(0.30 -1.33)	0.9 16	1.05(0.40 -2.74)	274	30	0.3 75	1.40(0.6 7-2.95)	0.3 71	1.41(0.6 7-2.97)	1284	70	0.9 02	1.03(0.6 9-1.52)	0.3 91	1.28(0.7 3-2.27)		
high-temperature exposure status																				
never	255	13	—	1.00 (ref)	—	1.00 (ref)	160	15	—	1.00 (ref)	—	1.00 (ref)	518	37	—	1.00 (ref)	—	1.00 (ref)		
ever	48	4	0.4 07	1.64(0.51 -5.23)	0.9 54	1.05(0.22 -5.02)	102	8	0.6 95	0.84(0.3 4-2.04)	0.7 17	0.85(0.3 5-2.08)	190	12	0.7 20	0.88(0.4 5-1.73)	0.9 38	0.96(0.3 7-2.52)		
current	239	15	0.5 93	1.23(0.57 -2.64)	0.2 01	1.81(0.73 -4.51)	221	22	0.8 64	1.06(0.5 3-2.11)	0.8 84	1.05(0.5 3-2.10)	1579	75	0.0 49	0.67(0.4 4-0.99)	0.6 51	1.15(0.6 3-2.09)		
CO exposure status																				
never	179	6	—	1.00 (ref)	—	1.00 (ref)	127	16	—	1.00 (ref)	—	1.00 (ref)	874	46	—	1.00 (ref)	—	1.00 (ref)		
ever	46	2	0.7 55	1.30(0.25 -6.64)	0.9 55	1.05(0.18 -6.12)	72	4	0.1 57	0.44(0.1 4-1.37)	0.1 46	0.43(0.1 4-1.34)	293	19	0.4 58	1.23(0.7 1-2.14)	0.2 57	1.47(0.7 6-2.85)		
current	317	24	0.0 80	2.26(0.91 -5.63)	0.2 69	1.82(0.63 -5.25)	284	25	0.2 88	0.70(0.3 6-1.35)	0.3 09	0.71(0.3 7-1.38)	1120	59	0.9 96	1.00(0.6 7-1.49)	0.3 96	1.27(0.7 3-2.21)		
cumulative noise exposure,[dB(A)·year]																				

never exposed	250	7	—	1.00 (ref)	—	1.00 (ref)	159	19	—	1.00 (ref)	—	1.00 (ref)	541	48	—	1.00 (ref)	—	1.00 (ref)
33.64~	100	9	0.0 24	3.21(1.17 -8.87)	0.0 12	4.23(1.38 -12.98)	100	9	0.5 04	0.75(0.3 3-1.73)	0.5 34	0.77(0.3 3-1.77)	399	12	0.0 01	0.34(0.1 8-0.65)	0.2 49	0.61(0.2 6-1.42)
90.70~	68	5	0.1 08	2.63(0.81 -8.53)	0.1 25	2.72(0.76 -9.79)	85	5	0.1 73	0.49(0.1 8-1.37)	0.1 98	0.51(0.1 8-1.42)	437	22	0.0 33	0.57(0.3 4-0.96)	0.5 11	0.78(0.3 8-1.63)
93.56~	53	5	0.0 45	3.37(1.03 -11.02)	0.0 95	3.18(0.82 -12.37)	67	4	0.2 23	0.50(0.1 6-1.52)	0.2 08	0.49(0.1 6-1.49)	483	14	<0. 001	0.33(0.1 8-0.60)	0.2 79	0.67(0.3 2-1.38)
96.25~111.76	71	6	0.0 54	3.02(0.98 -9.27)	0.3 82	1.91(0.45 -8.15)	72	8	0.8 70	0.93(0.3 9-2.22)	0.9 31	0.96(0.4 0-2.32)	427	28	0.2 20	0.74(0.4 6-1.20)	0.8 20	0.92(0.4 5-1.88)
cumulative dust exposure,[mg/m³·year]																		
never exposed	217	16	—	1.00 (ref)	—	1.00 (ref)	128	10	—	1.00 (ref)	—	1.00 (ref)	771	41	—	1.00 (ref)	—	1.00 (ref)
59.22~	100	4	0.2 85	0.54(0.18 -1.66)	0.7 61	1.23(0.32 -4.66)	82	4	0.4 39	0.62(0.1 9-2.06)	0.4 66	0.64(0.1 9-2.12)	390	12	0.1 01	0.58(0.3 0-1.11)	0.5 72	1.25(0.5 7-2.73)
138.70~	49	2	0.4 40	0.55(0.12 -2.49)	0.4 38	0.46(0.07 -3.24)	76	9	0.3 88	1.52(0.5 9-3.90)	0.4 08	1.49(0.5 8-3.85)	432	15	0.1 66	0.65(0.3 6-1.19)	0.8 94	0.95(0.4 4-2.06)
271.30~	76	4	0.5 57	0.71(0.23 -2.20)	0.6 71	1.32(0.36 -4.82)	101	7	0.8 15	0.89(0.3 3-2.41)	0.8 09	0.88(0.3 2-2.41)	363	28	0.1 42	1.45(0.8 8-2.38)	0.1 78	1.58(0.8 1-3.09)
456.82~1464.48	100	6	0.6 76	0.81(0.31 -2.14)	0.6 57	1.33(0.38 -4.73)	96	15	0.1 07	2.00(0.8 6-4.65)	0.1 09	2.00(0.8 6-4.66)	331	28	0.0 67	1.59(0.9 7-2.62)	0.2 93	1.47(0.7 2-3.02)
cumulative high-temperature exposure,[°C·year]																		
never exposed	255	13	—	1.00 (ref)	—	1.00 (ref)	160	15	—	1.00 (ref)	—	1.00 (ref)	518	37	—	1.00 (ref)	—	1.00 (ref)
374.44~	94	5	0.9 37	1.04(0.36 -3.01)	0.3 39	1.99(0.49 -8.08)	75	5	0.5 24	0.71(0.2 5-2.03)	0.5 37	0.72(0.2 5-2.06)	447	17	0.0 36	0.53(0.3 0-0.96)	0.8 06	1.11(0.4 9-2.51)
951.20~	54	2	0.6 80	0.73(0.16 -3.31)	0.8 11	0.82(0.16 -4.30)	86	4	0.2 26	0.50(0.1 6-1.54)	0.2 19	0.49(0.1 6-1.53)	467	15	0.0 11	0.45(0.2 4-0.83)	0.9 59	0.98(0.4 5-2.13)
2316.34~	65	8	0.0 61	2.41(0.96 -6.07)	0.0 57	3.09(0.97 -9.88)	93	5	0.2 96	0.57(0.2 0-1.63)	0.2 67	0.55(0.1 9-1.57)	437	25	0.4 06	0.80(0.4 8-1.35)	0.5 75	1.23(0.6 0-2.51)
3590.92~7608.06	74	4	0.9 21	1.06(0.34 -3.35)	0.8 13	1.18(0.29 -4.76)	69	16	0.0 19	2.47(1.1 6-5.28)	0.0 15	2.60(1.2 1-5.60)	418	30	0.9 85	1.01(0.6 1-1.65)	0.6 97	1.16(0.5 6-2.42)
cumulative CO exposure,[mg/m³·year]																		
never exposed	179	6	—	1.00 (ref)	—	1.00 (ref)	127	16	—	1.00 (ref)	—	1.00 (ref)	874	46	—	1.00 (ref)	—	1.00 (ref)

76.76~	105	7	0.2 28	1.99(0.65 -6.08)	0.2 76	2.17(0.54 -8.77)	84	2	0.0 29	0.19(0.0 4-0.84)	0.0 87	0.26(0.0 5-1.22)	365	11	0.1 02	0.57(0.2 9-1.12)	0.3 61	1.40(0.6 8-2.88)
277.72~	60	1	0.5 22	0.50(0.06 -4.21)	0.9 25	0.92(0.17 -5.15)	79	7	0.4 59	0.70(0.2 8-1.79)	0.5 60	0.75(0.2 9-1.96)	398	21	0.9 93	1.00(0.5 9-1.70)	0.3 06	1.42(0.7 3-2.78)
544.88~	79	6	0.1 68	2.27(0.71 -7.24)	0.6 57	1.41(0.31 -6.39)	92	6	0.1 86	0.52(0.2 0-1.37)	0.2 36	0.55(0.2 0-1.48)	360	26	0.2 11	1.37(0.8 4-2.25)	0.1 12	1.67(0.8 9-3.16)
888.50~2684.10	119	12	0.0 32	3.01(1.10 -8.24)	0.2 91	1.96(0.56 -6.82)	101	14	0.8 06	1.10(0.5 1-2.36)	0.8 12	0.91(0.4 1-2.01)	290	20	0.3 28	1.31(0.7 6-2.25)	0.6 91	0.85(0.3 7-1.92)

Model1 is unadjusted; Model2 is adjusted for age, nationality, education level, monthly family income per capita , entry factory date, work categories, shift work, usage of dust proof masks, usage of cooling drinks, usage of noise proof earplugs, personal and family disease history, medication history, BMI, PA, smoking, drinking, and PDI scores.

Supplementary Table S17. Associations between occupational hazards and FBG trajectories by BMI in Group 1 and Group 2.

subgroup	BMI < 24kg/m ³						BMI ≥ 24kg/m ³					
	n group 1	n group 2	Model1		Model2		n group 1	n group 2	Model1		Model2	
			P- value	OR (95%CI)	P- value	OR (95%CI)			P- value	OR (95%CI)	P- value	OR (95%CI)
noise exposure status												
never	331	11	—	1.00 (ref)	—	1.00 (ref)	619	45	—	1.00 (ref)	—	1.00 (ref)
ever	163	13	0.037	2.40(1.05-5.47)	0.001	3.62(1.67-7.86)	304	23	0.881	1.04(0.62-1.75)	0.699	0.90(0.51-1.57)
current	682	24	0.877	1.06(0.51-2.19)	0.803	0.91(0.43-1.93)	1213	99	0.535	1.12(0.78-1.62)	0.563	1.15(0.72-1.84)
dust exposure status												
never	402	13	—	1.00 (ref)	—	1.00 (ref)	714	59	—	1.00 (ref)	—	1.00 (ref)
ever	139	5	0.842	1.11(0.39-3.18)	0.900	1.06(0.41-2.75)	218	18	0.998	1.00(0.58-1.73)	0.513	0.82(0.46-1.48)
current	635	30	0.262	1.46(0.75-2.83)	0.286	1.44(0.74-2.84)	1204	90	0.565	0.91(0.64-1.27)	0.843	0.96(0.64-1.44)
high-temperature exposure status												
never	344	13	—	1.00 (ref)	—	1.00 (ref)	589	33	—	1.00 (ref)	—	1.00 (ref)
ever	115	7	0.322	1.61(0.63-4.14)	0.211	1.82(0.71-4.65)	225	15	0.588	1.19(0.63-2.23)	0.980	1.01(0.51-1.99)
current	717	28	0.924	1.03(0.53-2.02)	0.999	1.01(0.51-1.97)	1322	119	0.019	1.61(1.08-2.39)	0.007	1.88(1.19-2.99)
CO exposure status												
never	411	13	—	1.00 (ref)	—	1.00 (ref)	769	62	—	1.00 (ref)	—	1.00 (ref)
ever	141	8	0.204	1.79(0.73-4.42)	0.304	1.57(0.67-3.69)	270	28	0.291	1.29(0.81-2.05)	0.621	1.13(0.69-1.86)
current	624	27	0.362	1.37(0.70-2.68)	0.464	1.29(0.65-2.57)	1097	77	0.434	0.87(0.62-1.23)	0.533	0.88(0.59-1.32)
cumulative noise exposure,[dB(A)·year]												
never exposed	331	11	—	1.00 (ref)	—	1.00 (ref)	619	45	—	1.00 (ref)	—	1.00 (ref)
33.64~	229	10	0.540	1.31(0.55-3.15)	0.155	1.89(0.79-4.52)	370	23	0.554	0.86(0.51-1.44)	0.917	0.97(0.54-1.74)
90.70~	203	7	0.940	1.04(0.40-2.72)	0.776	1.14(0.46-2.87)	387	33	0.503	1.17(0.74-1.87)	0.543	1.18(0.69-2.03)
93.56~	210	9	0.579	1.29(0.53-3.17)	0.544	1.32(0.54-3.26)	393	27	0.822	0.95(0.58-1.55)	0.530	0.84(0.48-1.47)
96.25~111.76	203	11	0.262	1.63(0.69-3.83)	0.450	1.40(0.58-3.36)	367	39	0.097	1.46(0.93-2.29)	0.418	1.25(0.73-2.13)
cumulative dust exposure,[mg/m ³ ·year]												
never exposed	402	13	—	1.00 (ref)	—	1.00 (ref)	714	59	—	1.00 (ref)	—	1.00 (ref)
59.22~	209	6	0.812	0.89(0.33-2.37)	0.597	1.33(0.46-3.83)	363	20	0.129	0.67(0.40-1.12)	0.805	0.93(0.51-1.70)
138.70~	205	7	0.909	1.06(0.42-2.69)	0.676	1.22(0.49-3.05)	352	28	0.873	0.96(0.60-1.54)	0.900	0.97(0.57-1.65)

271.30~	174	11	0.110	1.96(0.86-4.45)	0.126	1.86(0.84-4.11)	366	28	0.746	0.93(0.58-1.48)	0.420	0.81(0.48-1.35)
456.82~1464.48	186	11	0.150	1.83(0.80-4.16)	0.884	1.06(0.46-2.46)	341	32	0.579	1.14(0.73-1.78)	0.998	1.00(0.60-1.67)
cumulative high-temperature exposure,[°C·year]												
never exposed	344	13	—	1.00 (ref)	—	1.00 (ref)	589	33	—	1.00 (ref)	—	1.00 (ref)
374.44~	208	6	0.590	0.76(0.29-2.04)	0.685	1.24(0.44-3.54)	408	22	0.892	0.96(0.55-1.68)	0.459	1.29(0.66-2.51)
951.20~	211	7	0.785	0.88(0.35-2.24)	0.685	0.83(0.33-2.09)	396	36	0.052	1.62(1.00-2.65)	0.014	1.99(1.15-3.44)
2316.34~	202	7	0.856	0.92(0.36-2.34)	0.695	0.84(0.35-2.03)	393	31	0.186	1.41(0.85-2.34)	0.338	1.32(0.75-2.30)
3590.92~7608.06	211	15	0.104	1.88(0.88-4.03)	0.179	1.71(0.78-3.74)	350	45	0.001	2.30(1.44-3.67)	0.010	2.05(1.19-3.53)
cumulative CO exposure,[mg/m ³ ·year]												
never exposed	411	13	—	1.00 (ref)	—	1.00 (ref)	769	62	—	1.00 (ref)	—	1.00 (ref)
76.76~	209	3	0.221	0.45(0.13-1.61)	0.574	0.75(0.27-2.08)	345	24	0.553	0.86(0.53-1.41)	0.494	1.22(0.70-2.12)
277.72~	195	8	0.570	1.30(0.53-3.18)	0.747	1.15(0.49-2.74)	342	27	0.930	0.98(0.61-1.57)	0.950	0.98(0.59-1.64)
544.88~	186	11	0.135	1.87(0.82-4.25)	0.098	1.98(0.88-4.45)	345	21	0.281	0.76(0.45-1.26)	0.115	0.64(0.37-1.11)
888.50~2684.10	175	13	0.034	2.35(1.07-5.17)	0.042	2.32(1.03-5.24)	335	33	0.374	1.22(0.79-1.90)	0.758	1.08(0.65-1.80)

Model1 is unadjusted; Model2 is adjusted for age, nationality, education level, monthly family income per capita , entry factory date, work categories, shift work, usage of dust proof masks, usage of cooling drinks, usage of noise proof earplugs, personal and family disease history, medication history, BMI, PA, smoking, drinking, and PDI scores.

Supplementary Table S18. Associations between occupational hazards and FBG trajectories by BMI in Group 1 and Group 3.

subgroup	BMI < 24kg/m ³						BMI ≥ 24kg/m ³					
	n group 1	n group 3	Model1		Model2		n group 1	n group 3	Model1		Model2	
			P- value	OR (95%CI)	P- value	OR (95%CI)			P- value	OR (95%CI)	P- value	OR (95%CI)
noise exposure status												
never	331	10	—	1.00 (ref)	—	1.00 (ref)	619	64	—	1.00 (ref)	—	1.00 (ref)
ever	163	5	0.978	1.02(0.34-3.02)	0.613	0.67(0.14-3.15)	304	29	0.731	0.92(0.58-1.46)	0.728	0.88(0.43-1.81)
current	682	26	0.538	1.26(0.60-2.65)	0.555	1.38(0.47-4.06)	1213	67	<0.001	0.53(0.37-0.76)	0.417	0.78(0.42-1.43)
dust exposure status												
never	402	19	—	1.00 (ref)	—	1.00 (ref)	714	48	—	1.00 (ref)	—	1.00 (ref)
ever	139	3	0.213	0.46(0.13-1.57)	0.373	0.51(0.11-2.27)	218	18	0.474	1.23(0.70-2.16)	0.239	1.61(0.73-3.53)
current	635	19	0.167	0.63(0.33-1.21)	0.761	0.86(0.33-2.24)	1204	94	0.415	1.16(0.81-1.66)	0.075	1.68(0.95-2.98)
high-temperature exposure status												
never	344	16	—	1.00 (ref)	—	1.00 (ref)	589	49	—	1.00 (ref)	—	1.00 (ref)
ever	115	3	0.365	0.56(0.16-1.96)	0.440	0.47(0.07-3.19)	225	21	0.673	1.12(0.66-1.91)	0.947	1.03(0.42-2.54)
current	717	22	0.214	0.66(0.34-1.27)	0.506	1.38(0.53-3.60)	1322	90	0.277	0.82(0.57-1.17)	0.125	1.58(0.88-2.82)
CO exposure status												
never	411	16	—	1.00 (ref)	—	1.00 (ref)	769	52	—	1.00 (ref)	—	1.00 (ref)
ever	141	4	0.577	0.73(0.24-2.22)	0.497	0.61(0.15-2.52)	270	21	0.602	1.15(0.68-1.95)	0.292	1.45(0.73-2.87)
current	624	21	0.666	0.86(0.45-1.68)	0.748	1.17(0.46-2.96)	1097	87	0.380	1.17(0.82-1.67)	0.401	1.27(0.73-2.21)
cumulative noise exposure,[dB(A)·year]												
never exposed	331	10	—	1.00 (ref)	—	1.00 (ref)	619	64	—	1.00 (ref)	—	1.00 (ref)
33.64~	229	3	0.208	0.43(0.12-1.59)	0.932	0.94(0.23-3.90)	370	27	0.144	0.71(0.44-1.13)	0.931	1.03(0.49-2.18)
90.70~	203	8	0.582	1.30(0.51-3.36)	0.703	1.28(0.37-4.46)	387	24	0.039	0.60(0.37-0.98)	0.724	0.88(0.42-1.82)
93.56~	210	6	0.915	0.95(0.34-2.64)	0.982	0.99(0.26-3.75)	393	17	0.002	0.42(0.24-0.73)	0.158	0.58(0.27-1.24)
96.25~111.76	203	14	0.051	2.28(1.00-5.24)	0.774	1.20(0.35-4.19)	367	28	0.198	0.74(0.47-1.17)	0.586	0.82(0.39-1.69)
cumulative dust exposure,[mg/m ³ ·year]												
never exposed	402	19	—	1.00 (ref)	—	1.00 (ref)	714	48	—	1.00 (ref)	—	1.00 (ref)
59.22~	209	2	0.033	0.20(0.05-0.88)	0.767	0.80(0.18-3.60)	363	18	0.284	0.74(0.42-1.29)	0.068	2.10(0.95-4.65)

138.70~	205	4	0.112	0.41(0.14-1.23)	0.594	0.68(0.16-2.86)	352	22	0.784	0.93(0.55-1.57)	0.619	0.80(0.33-1.93)
271.30~	174	9	0.828	1.09(0.49-2.47)	0.979	1.02(0.33-3.16)	366	30	0.412	1.22(0.76-1.96)	0.133	1.71(0.85-3.45)
456.82~1464.48	186	7	0.613	0.80(0.33-1.93)	0.395	0.59(0.18-1.99)	341	42	0.006	1.83(1.19-2.83)	0.032	2.10(1.07-4.15)
cumulative high-temperature exposure,[°C·year]												
never exposed	344	16	—	1.00 (ref)	—	1.00 (ref)	589	49	—	1.00 (ref)	—	1.00 (ref)
374.44~	208	3	0.065	0.31(0.09-1.08)	0.916	0.92(0.19-4.52)	408	24	0.178	0.71(0.43-1.17)	0.303	1.55(0.68-3.55)
951.20~	211	5	0.194	0.51(0.18-1.41)	0.875	1.11(0.29-4.21)	396	16	0.014	0.49(0.27-0.87)	0.788	0.89(0.38-2.10)
2316.34~	202	8	0.716	0.85(0.36-2.03)	0.507	1.46(0.48-4.49)	393	30	0.721	0.92(0.57-1.47)	0.227	1.54(0.77-3.08)
3590.92~7608.06	211	9	0.839	0.92(0.40-2.11)	0.917	1.07(0.32-3.58)	350	41	0.123	1.41(0.91-2.18)	0.118	1.75(0.87-3.52)
cumulative CO exposure,[mg/m³·year]												
never exposed	411	16	—	1.00 (ref)	—	1.00 (ref)	769	52	—	1.00 (ref)	—	1.00 (ref)
76.76~	209	2	0.063	0.25(0.06-1.08)	0.903	0.92(0.23-3.61)	345	18	0.356	0.77(0.45-1.34)	0.202	1.64(0.77-3.49)
277.72~	195	8	0.905	1.05(0.44-2.50)	0.928	1.06(0.32-3.50)	342	21	0.718	0.91(0.54-1.53)	0.779	1.12(0.52-2.39)
544.88~	186	9	0.610	1.24(0.54-2.86)	0.468	1.50(0.51-4.43)	345	29	0.366	1.24(0.78-1.99)	0.358	1.37(0.70-2.68)
888.50~2684.10	175	6	0.794	0.88(0.34-2.29)	0.513	0.64(0.17-2.44)	335	40	0.010	1.77(1.15-2.72)	0.609	1.20(0.60-2.40)

Model1 is unadjusted; Model2 is adjusted for age, nationality, education level, monthly family income per capita , entry factory date, work categories, shift work, usage of dust proof masks, usage of cooling drinks, usage of noise proof earplugs, personal and family disease history, medication history, BMI, PA, smoking, drinking, and PDI scores.

Supplementary Table S19. Logistic Analysis of ERS and FBG Trajectories Group 1 and Group 2.

subgroup	n group1	n group2	Model1					Model2				
			β	SE_{β}	Wald	P-value	OR (95%CI)	β	SE_{β}	Wald	P-value	OR (95%CI)
ERS1												
<2.5	676	30	—	—	—	—	1.00 (ref)	—	—	—	—	1.00 (ref)
2.5~	677	29	-0.04	0.27	0.02	0.894	0.97(0.57-1.63)	-0.11	0.28	0.15	0.695	0.90(0.51-1.56)
4.4~	659	46	0.45	0.24	3.53	0.060	1.57(0.98-2.52)	0.32	0.26	1.46	0.227	1.37(0.82-2.29)
6.3~	657	48	0.50	0.24	4.35	0.037	1.65(1.03-2.63)	0.44	0.26	2.94	0.086	1.56(0.94-2.58)
≥8.4	643	62	0.78	0.23	11.47	0.001	2.17(1.39-3.40)	0.64	0.25	6.63	0.010	1.90(1.17-3.10)
ERS2												
<2.1	676	30	—	—	—	—	1.00 (ref)	—	—	—	—	1.00 (ref)
2.1~	676	30	0.00	0.26	0.00	1.000	1.00(0.60-1.68)	-0.08	0.29	0.08	0.781	0.92(0.52-1.63)
4.0~	667	38	0.25	0.25	1.00	0.318	1.28(0.79-2.10)	0.09	0.27	0.11	0.741	1.10(0.64-1.87)
6.1~	647	58	0.70	0.23	9.22	0.002	2.02(1.28-3.18)	0.57	0.26	4.86	0.027	1.77(1.07-2.95)
≥8.5	646	59	0.72	0.23	9.77	0.002	2.06(1.31-3.24)	0.46	0.26	3.06	0.080	1.59(0.95-2.66)

Model1 is unadjusted; Model2 is adjusted for age, nationality, education level, monthly family income per capita , entry factory date, work categories, shift work, usage of dust proof masks, usage of cooling drinks, usage of noise proof earplugs, personal and family disease history, medication history, BMI, PA, smoking, drinking, and PDI scores.

ERS1 was constructed by using 10 times the regression coefficients of the occupational hazards of the single occupational hazards model as weights; ERS2 was constructed by using 10 times the regression coefficients of the occupational hazards of the multiple occupational hazards model as weights.

Supplementary Table S20. Logistic Analysis of ERS and FBG Trajectories Group 1 and Group 3.

subgroup	n group1	n group3	Model1					Model2				
			β	SE_{β}	Wald	P-value	OR (95%CI)	β	SE_{β}	Wald	P-value	OR (95%CI)
ERS1												
<2.5	658	45	—	—	—	—	1.00 (ref)	—	—	—	—	1.00 (ref)
2.5~	667	36	-0.24	0.23	1.06	0.304	0.79(0.50-1.24)	0.00	0.39	0.00	0.998	1.00(0.47-2.14)
4.4~	668	35	-0.27	0.23	1.32	0.251	0.77(0.49-1.21)	0.31	0.38	0.67	0.412	1.36(0.65-2.85)
6.3~	667	35	-0.27	0.23	1.30	0.253	0.77(0.49-1.21)	0.40	0.37	1.18	0.277	1.49(0.73-3.08)
≥8.4	652	50	0.12	0.21	0.29	0.590	1.12(0.74-1.70)	0.79	0.36	4.89	0.027	2.21(1.09-4.45)
ERS2												
<2.1	660	43	—	—	—	—	1.00 (ref)	—	—	—	—	1.00 (ref)
2.1~	670	33	-0.28	0.24	1.38	0.240	0.76(0.47-1.21)	0.39	0.39	1.01	0.316	1.48(0.69-3.19)
4.0~	674	29	-0.42	0.25	2.83	0.092	0.66(0.41-1.07)	0.19	0.41	0.21	0.647	1.21(0.54-2.71)
6.1~	652	50	0.16	0.22	0.57	0.449	1.18(0.77-1.80)	0.95	0.37	6.62	0.010	2.59(1.25-5.33)
≥8.5	656	46	0.07	0.22	0.11	0.737	1.08(0.70-1.65)	0.51	0.38	1.75	0.186	1.66(0.78-3.52)

Model1 is unadjusted; Model2 is adjusted for age, nationality, education level, monthly family income per capita , entry factory date, work categories, shift work, usage of dust proof masks, usage of cooling drinks, usage of noise proof earplugs, personal and family disease history, medication history, BMI, PA, smoking, drinking, and PDI scores.

ERS1 was constructed by using 10 times the regression coefficients of the occupational hazards of the single occupational hazards model as weights; ERS2 was constructed by using 10 times the regression coefficients of the occupational hazards of the multiple occupational hazards model as weights.

Supplementary Table S21. Logistic Analysis of Occupational Hazards and FBG Trajectories after excluding diabetic patients.

subgroup	Group 1 VS Group 2							Group 1 VS Group 3						
	n Group1	n Group2	β	SE_{β}	Wald	P-value	OR (95%CI)	n Group1	n Group3	β	SE_{β}	Wald	P-value	OR (95%CI)
noise exposure status														
never	950	53	—	—	—	—	1.00 (ref)	950	31	—	—	—	—	1.00 (ref)
ever	467	32	0.27	0.22	1.47	0.225	1.31(0.85-2.02)	467	13	0.29	0.23	1.68	0.194	1.34(0.86-2.09)
current	1895	117	0.10	0.17	0.34	0.562	1.10(0.80-1.53)	1895	55	0.13	0.20	0.43	0.511	1.14(0.77-1.68)
dust exposure status														
never	1116	69	—	—	—	—	1.00 (ref)	1116	32	—	—	—	—	1.00 (ref)
ever	357	21	0.00	0.25	0.00	0.995	1.00(0.62-1.62)	357	10	-0.08	0.25	0.10	0.749	0.92(0.57-1.50)
current	1839	112	0.01	0.15	0.01	0.941	1.01(0.75-1.37)	1839	57	0.06	0.17	0.12	0.731	1.06(0.76-1.48)
high-temperature exposure status														
never	933	41	—	—	—	—	1.00 (ref)	933	21	—	—	—	—	1.00 (ref)
ever	340	18	0.27	0.27	1.04	0.308	1.31(0.78-2.21)	340	6	0.11	0.27	0.16	0.691	1.12(0.65-1.90)
current	2039	143	0.38	0.17	4.80	0.029	1.46(1.04-2.06)	2039	72	0.44	0.19	5.44	0.020	1.55(1.07-2.23)
CO exposure status														
never	1180	70	—	—	—	—	1.00 (ref)	1180	31	—	—	—	—	1.00 (ref)
ever	411	34	0.32	0.21	2.32	0.128	1.38(0.91-2.08)	411	13	0.25	0.21	1.39	0.239	1.28(0.85-1.93)
current	1721	98	-0.05	0.16	0.11	0.746	0.95(0.70-1.29)	1721	55	-0.02	0.17	0.01	0.931	0.99(0.70-1.38)
cumulative noise exposure,[dB(A)·year]														
never exposed	950	53	—	—	—	—	1.00 (ref)	950	31	—	—	—	—	1.00 (ref)
33.64~	599	29	-0.07	0.23	0.09	0.764	0.94(0.60-1.45)	599	14	0.23	0.24	0.88	0.349	1.25(0.78-2.01)
90.70~	590	38	0.14	0.21	0.43	0.512	1.15(0.76-1.75)	590	18	0.22	0.23	0.91	0.340	1.25(0.79-1.96)
93.56~	603	35	0.01	0.22	0.00	0.954	1.01(0.66-1.56)	603	13	-0.03	0.24	0.01	0.906	0.97(0.61-1.55)
96.25~111.76	570	47	0.40	0.20	3.89	0.049	1.488(1.01-2.21)	570	23	0.32	0.22	2.00	0.157	1.37(0.89-2.12)
cumulative dust exposure,[mg/m ³ ·year]														
never exposed	1116	69	—	—	—	—	1.00 (ref)	1116	32	—	—	—	—	1.00 (ref)

59.22~	572	25	-0.35	0.24	2.23	0.135	0.71(0.45-1.12)	572	14	0.08	0.25	0.10	0.748	1.09(0.66-1.78)
138.70~	557	31	-0.03	0.21	0.02	0.901	0.97(0.64-1.48)	557	8	0.09	0.23	0.16	0.685	1.10(0.70-1.71)
271.30~	540	38	0.11	0.21	0.30	0.583	1.12(0.75-1.68)	540	20	-0.03	0.22	0.02	0.896	0.97(0.64-1.48)
456.82~1464.48	527	39	0.24	0.20	1.38	0.240	1.27(0.86-1.87)	527	25	-0.04	0.22	0.03	0.874	0.97(0.63-1.48)
cumulative high-temperature exposure,[°C·year]														
never exposed	933	41	—	—	—	—	1.00 (ref)	933	21	—	—	—	—	1.00 (ref)
374.44~	616	26	-0.08	0.25	0.11	0.740	0.92(0.57-1.49)	616	17	0.20	0.28	0.51	0.477	1.22(0.71-2.09)
951.20~	607	41	0.36	0.22	2.75	0.097	1.44(0.94-2.21)	607	11	0.50	0.23	4.66	0.031	1.65(1.05-2.59)
2316.34~	595	35	0.26	0.23	1.32	0.251	1.30(0.83-2.02)	595	25	0.15	0.23	0.40	0.525	1.16(0.73-1.84)
3590.92~7608.06	561	59	0.77	0.20	14.5 3	<0.001	2.17(1.46-3.23)	561	25	0.62	0.22	7.82	0.005	1.85(1.20-2.85)
cumulative CO exposure,[mg/m ³ ·year]														
never exposed	1180	70	—	—	—	—	1.00 (ref)	1180	31	—	—	—	—	1.00 (ref)
76.76~	554	25	-0.27	0.23	1.33	0.249	0.77(0.49-1.20)	554	15	0.12	0.24	0.25	0.621	1.13(0.70-1.80)
277.72~	537	33	0.03	0.21	0.01	0.905	1.03(0.68-1.55)	537	13	0.06	0.22	0.07	0.794	1.06(0.69-1.62)
544.88~	531	30	-0.05	0.22	0.06	0.807	0.95(0.62-1.45)	531	23	-0.13	0.22	0.35	0.552	0.88(0.57-1.35)
888.50~2684.10	510	44	0.35	0.20	3.23	0.072	1.42(0.97-2.08)	510	17	0.20	0.22	0.84	0.358	1.22(0.80-1.85)

Model is adjusted for age, nationality, education level, monthly family income per capita , entry factory date, work categories, shift work, usage of dust proof masks, usage of cooling drinks, usage of noise proof earplugs, personal and family disease history, medication history, BMI, PA, smoking, drinking, and PDI scores.

Supplementary Table S22. Logistic Analysis of ERS and FBG Trajectories after excluding diabetic patients.

subgroup	Group 1 VS Group 2							subgroup	Group 1 VS Group 3						
	n Group1	n Group2	β	SE_{β}	Wald	P-value	OR (95%CI)		n Group1	n Group3	β	SE_{β}	Wald	P-value	OR (95%CI)
ERS1								ERS1							
<2.5	676	29	—	—	—	—	1.00 (ref)	<2.4	658	16	—	—	—	—	1.00 (ref)
2.5~	677	27	-0.09	0.28	0.10	0.759	0.92(0.53-1.58)	2.4~	667	15	-0.07	0.37	0.04	0.847	0.93(0.45-1.93)
4.4~	659	40	0.31	0.26	1.45	0.229	1.36(0.82-2.25)	3.2~	668	17	0.27	0.36	0.54	0.462	1.31(0.64-2.66)
6.3~	657	44	0.46	0.25	3.34	0.067	1.58(0.97-2.59)	4.9~	667	20	0.26	0.35	0.54	0.463	1.29(0.65-2.57)
≥8.4	643	62	0.65	0.24	7.41	0.006	1.92(1.20-3.07)	≥5.7	652	31	0.70	0.33	4.46	0.035	2.01(1.05-3.84)
ERS2								ERS2							
<2.1	676	28	—	—	—	—	1.00 (ref)	<2.2	660	13	—	—	—	—	1.00 (ref)
2.1~	676	26	-0.08	0.28	0.08	0.772	0.92(0.53-1.60)	2.2~	670	18	0.45	0.38	1.42	0.234	1.57(0.75-3.28)
4.0~	667	36	0.12	0.27	0.22	0.642	1.13(0.67-1.91)	3.7~	674	16	0.41	0.39	1.14	0.286	1.51(0.71-3.24)
6.1~	647	53	0.56	0.25	4.94	0.026	1.74(1.07-2.85)	4.7~	652	28	0.96	0.35	7.38	0.007	2.61(1.31-5.21)
≥8.5	646	59	0.50	0.25	3.86	0.049	1.64(1.01-2.69)	≥6.7	656	24	0.58	0.36	2.56	0.110	1.79(0.88-3.63)

Model is adjusted for age, nationality, education level, monthly family income per capita , entry factory date, work categories, shift work, usage of dust proof masks, usage of cooling drinks, usage of noise proof earplugs, personal and family disease history, medication history, BMI, PA, smoking, drinking, and PDI scores.

ERS1 was constructed by using 10 times the regression coefficients of the occupational hazards of the single occupational hazards model as weights; ERS2 was constructed by using 10 times the regression coefficients of the occupational hazards of the multiple occupational hazards model as weights.