



INTERPLAY OF SMOG AND HEALTH CONDITIONS: A PUBLIC HEALTH PERSPECTIVE ON RESPIRATORY, HYPERTENSIVE, AND CARDIOVASCULAR MORBIDITY

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Table 1: Demographic Profile of Smog exposed and Non-Exposed participants

Demographic Variable	Smog exposed participants (n=600)	Non-exposed participants (n=600)	p≤0.05
Age (years)	46.51±11.27	44.16±10.71	0.110
Gender (%)			
Male	68.04±6.26	65.33±7.59	0.527
Female	32.07±7.59	34.73±4.77	0.521
BMI (kg/m ²)	27.82±4.21	26.47±3.65	0.024
Smoking Status (%)			
Current Smokers	21.33±3.66	15.45±3.44	0.152
Ex-Smokers	11.14±2.54	8.24±2.66	0.356
Non-Smokers	67.67±4.55	76.46±7.89	0.081
Socioeconomic Status (%)			
Low	40.26±3.88	30.85±7.99	0.044
Middle	41.34±7.59	45.75±6.58	0.329
High	18.53±2.15	23.52±7.88	0.178

Note: BMI = Body Mass Index

Table 2: Hematological Profile of Smog-Exposed and Non-Exposed participants

Hematological Parameter	Smog exposed participants (n=600)	Non-exposed participants (n=600)	p≤0.05
Hemoglobin (g/dL)	13.25±1.81	13.96±1.63	0.257
White Blood Cell Count (×10 ⁹ /L)	7.22±2.31	6.46±1.94	0.025
Red Blood Cell Count (×10 ⁶ /μL)	5.15±0.64	5.22±0.54	0.371
Platelet Count (×10 ⁹ /L)	225.37±45.20	210.79±38.58	0.084
Total Cholesterol (mg/dL)	197.53±40.16	184.35±35.28	0.025
Low-Density Lipoprotein (LDL, mg/dL)	118.32±30.71	110.24±28.44	0.062
High-Density Lipoprotein (HDL, mg/dL)	39.62±7.83	42.36±6.55	0.041
Triglycerides (mg/dL)	178.24±38.66	165.92±36.14	0.036

Note: LDL = Low-Density Lipoprotein, HDL = High-Density Lipoprotein

Table 3: Respiratory Health Conditions in Smog-Exposed vs. Non-Exposed Populations

Health Condition	Smog exposed participants (n=600)	Non-exposed participants (n=600)	p≤0.05
FVC (Forced Vital Capacity) (L)	3.15±0.45	4.05±0.38	0.016
FEV1 (Forced Expiratory Volume in 1 second) (L)	2.68±0.37	3.21±0.31	0.001
Peak Expiratory Flow Rate (L/min)	280.22±45.74	350.23±38.44	0.028
Asthma Prevalence (%)	28.37±6.45	12.54±2.99	0.046
COPD Prevalence (%)	17.88±4.79	6.29±1.09	0.017

Note: FVC = Forced Vital Capacity, FEV1 = Forced Expiratory Volume in 1 second, COPD = Chronic Obstructive Pulmonary Disease

Table 4: Hypertensive Disorders in Smog-Exposed vs. Non-Exposed Populations

Health Condition	Smog-Exposed participants (n=600)	Non-Exposed participants (n=600)	p≤0.05
Systolic Blood Pressure (mmHg)	142.37±15.75	130.44±12.33	0.042
Diastolic Blood Pressure (mmHg)	92.16±10.56	84.66± 8.94	0.039
Hypertension Prevalence (%)	54.17±8.10	32.36±9.88	0.018
Mean Arterial Pressure (mmHg)	107.46±12.17	98.59±9.62	0.042

Note: Hypertension is defined as systolic BP ≥ 140 mmHg or diastolic BP ≥ 90 mmHg.

Table 5: Cardiovascular Morbidity in Smog-Exposed vs. Non-Exposed Populations

Health Condition	Smog-Exposed participants (n=600)	Non-Exposed participants (n=600)	p≤0.05
Chronic Heart Disease Prevalence (%)	18.94±3.88	9.57±2.19	0.039
Myocardial Infarction Prevalence (%)	7.84±1.09	3.27±0.82	0.017
Stroke Prevalence (%)	5.42±0.98	2.39±0.62	0.001
Resting Heart Rate (bpm)	82.39±12.56	76.43±10.21	0.000
ECG Abnormalities (%)	12.11±4.88	6.03±1.85	0.029

Note: ECG = Electrocardiogram, bpm = beats per minute

Table 6: Combined Health Effects in Smog-Exposed vs. Non-Exposed Populations

Combined Health Condition	Smog-Exposed participants (n=600)	Non-Exposed participants (n=600)	p≤0.05
Prevalence of Respiratory + Hypertensive Disorders (%)	61.54±7.59	38.47±5.66	0.006
Prevalence of Respiratory + Cardiovascular Disorders (%)	35.35±6.10	20.06±2.09	0.013
Prevalence of Hypertensive + Cardiovascular Disorders (%)	22.52±3.77	13.73±1.99	0.002
Prevalence of Respiratory + Hypertensive + Cardiovascular Disorders (%)	15.26±2.08	7.52±2.88	0.017