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Risk assesment of air pollution exposure (NO2, SO2, total suspended particulate, and particulate matter 10 micron) and smoking habits on the lung function of bus drivers in Palembang City

Elvi Sunarsih, author

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Abstrak

ABSTRACT
Nitrogen dioxide (NO2), sulfur dioxide (SO2), particulate matter (PM10), and total suspended particulate (TSP) are the most common and harmful air pollutants to humans. In a short period, air pollution exposure at 5 ppm for 10 minutes in humans causes dyspnea, and when the level is increased to 800 ppm could cause 100% mortality in animals. This study was an analytical study with implementing a cross-sectional design and risk analysis. One hundred subjects were involved in this study. The results showed that the mean value of the non-cancer Hazard Index (HI) for real-time exposure was NO2: 1.85; SO2: 2.92; TSP: 7.09; and PM10: 11.7 (HI value ≥1). Test for forced vital capacity lung capacity to non-cancer risk estimation of NO2, SO2, TSP, and PM10 indicated that there was no significant relationship (p-value >0.05). The variable of smoking habit is the most dominant variable (odds ratio [OR] = 12.542) which affects respiratory disorders. The exposure to NO2, SO2, TSP, and PM10 in Palembang City bus drivers is considered hazardous to the health of subjects without cancer.