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

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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.