

## INTISARI

**Latar Belakang :** Paparan timbal dapat menyebabkan terjadinya kerusakan sel melalui berbagai mekanisme dan memicu reaksi hipersensitivitas hingga akhirnya dapat menyebabkan gangguan pada sistem pernapasan dan terjadinya penurunan kapasitas fungsi paru. Tingkat polusi udara yang merupakan hasil dari gas buang industri dan emisi kendaraan bermotor yang mengandung timbal di Indonesia saat ini cukup tinggi. Penduduk dan pekerja di sekitar terminal memiliki potensi yang cukup tinggi untuk terpapar polusi dari gas buang kendaraan umum.

**Tujuan :** Untuk mengetahui korelasi kadar timbal darah dengan kapasitas fungsi paru pada penduduk dan pekerja di sekitar terminal Condongcatur dan Jombor.

**Metode :** Penelitian berjenis observasional analitik dan menggunakan desain *cross sectional*. Kriteria inklusi penelitian ini ialah individu berusia 15-79 yang bekerja atau yang bertempat tinggal minimal enam bulan di sekitar Terminal Condongcatur dan Jombor Kabupaten Sleman yang terpapar timbal dari emisi gas kendaraan bermotor secara terus menerus, dengan kriteria eksklusi berupa orang yang memiliki riwayat penyakit pernapasan bawaan. Bagi yang bersedia untuk berpartisipasi dalam penelitian akan menandatangani *informed consent*.

**Hasil:** Subjek penelitian didapatkan sebanyak 66 orang. Hasil uji korelasi *spearman* kadar timbal dan FVC *percent predictive value* menunjukkan  $p : 0,000$  dengan kekuatan korelasi sedang sebesar  $-0,554$ . Hasil uji korelasi *spearman* kadar timbal dan FEV1 *percent predictive value* menunjukkan  $p : 0,000$  dengan kekuatan korelasi kuat sebesar  $-0,731$ . Hasil uji korelasi *spearman* kadar timbal dan rasio FEV1/FVC menunjukkan  $p : 0,006$ , dengan kekuatan korelasi lemah sebesar  $-0,338$ .

**Kesimpulan :** Terdapat hubungan antara kadar timbal darah dan FVC *percent predictive value*, dengan nilai *significance* pada hasil menunjukkan ( $p : 0,00 < 0,05$ ) dengan kekuatan korelasi  $-0,554$ . Terdapat hubungan antara kadar timbal darah dan FEV1 *percent predictive value*, dengan nilai *significance* pada hasil menunjukkan ( $p : 0,00 < 0,5$ ) dengan kekuatan korelasi  $-0,731$ . Terdapat hubungan antara kadar timbal darah dan rasio FEV1/FVC, dengan nilai *significance* pada hasil menunjukkan ( $p : 0,006 < 0,5$ ) dengan kekuatan korelasi  $-0,338$ .

**Kata Kunci :** Timbal darah, Kapasitas Fungsi Paru, *Forced Vital Capacity* (FVC), *Forced Expiration Volume in 1 second* (FEV1), Rasio FEV1/FVC, Pekerja Terminal, Penduduk Sekitar Terminal.

## ABSTRACT

**Background:** Lead is a heavy metal that is toxic to the body. Lead can cause cell damage through a variety of mechanisms and trigger hypersensitivity reactions which can eventually cause disruption in the breathing system and decrease lung functional capacity. The level of air pollution which is the result of industrial exhaust gases and emissions of motor vehicles containing lead in Indonesia is currently quite high. Residents and workers around the bus station have a high enough potential to be exposed to pollution from public vehicle exhaust.

**Objective:** To determine the correlation of blood lead levels with lung function capacity in residents and workers in the bus station of Condongcatut and Jombor.

**Methods:** The study was analytic observational type and used cross sectional design. The inclusion criteria of this study were individuals aged 15-79 who worked or who lived for a minimum of six months around the bus station of Condongcatut and Jombor in Sleman Regency who were exposed to lead from motor vehicle gas emissions continuously, with exclusion criteria in the form of people with a history of respiratory disease. For those who are willing to participate in this research will sign the informed consent.

**Results:** Research subjects were 66 people. Spearman correlation test results of lead content and FVC percent predictive value showed p: 0,000 with moderate correlation strength of -0.554. Spearman correlation test results of lead content and FEV1 showed p: 0,000 with a strong correlation strength of -0.731. Spearman correlation test results of lead content and FEV1 / FVC ratio showed p: 0.006, with a weak correlation strength of -0.333.

**Conclusion:** There is a relationship between blood lead levels and FVC percent predictive value, with the significance value in the results showed (p: 0.00 <0.05) with the correlation strength of -0.554. There is a relationship between blood lead levels and FEV1 percent predictive value, with the significance value in the results showing (p: 0.00 <0.5) with a correlation strength of -0.731. There is a relationship between blood lead levels and FEV1 / FVC ratio, with the significance value in the results showing (p: 0.006 <0.5) with the correlation strength of -0.333.

**Keywords:** Blood Lead Level, Lung Functional Capacity, Forced Vital Capacity (FVC), Forced Expiration Volume in 1 second (FEV1), FEV1 / FVC Ratio, Bus Station Workers, Residents Around Bus Station.