

HUBUNGAN ANTARA PAJANAN PM_{2.5} DAN FAKTOR INDIVIDU SERTA GANGGUAN FUNGSI PARU PADA PENJUAL BENSIN ECERAN DI KOTA BEKASI TAHUN 2026

Dinda Annisa Putri Lesmana

Abstrak

Pencemaran udara akibat paparan *Particulate Matter* 2,5 (PM_{2.5}) dapat meningkatkan risiko gangguan sistem pernapasan, khususnya pada pekerja yang beraktivitas di ruang terbuka seperti penjual bensin eceran. Berdasarkan laporan IQAir tahun 2025, Kota Bekasi termasuk kedalam lima besar kota pencemaran PM_{2.5} tertinggi dengan rata-rata konsentrasi PM_{2.5} mencapai sekitar 32,7 µg/m³. Penelitian ini bertujuan menganalisis hubungan antara pajanan PM_{2.5} dan faktor individu dengan gangguan fungsi paru pada penjual bensin eceran di Kota Bekasi Tahun 2026. Penelitian ini menggunakan metode kuantitatif dengan desain studi *cross-sectional*. Sampel penelitian terdiri atas 102 responden yang dipilih dengan teknik *purposive sampling*. Instrumen yang digunakan antara lain *Air Quality Monitor* (pengukuran PM_{2.5}), spirometer (pengukuran fungsi paru), dan kuesioner (karakteristik responden). Data dianalisis menggunakan uji *Chi-Square*. Terdapat sebanyak 88,2% penjual bensin eceran yang mengalami gangguan fungsi paru. Terdapat hubungan signifikan antara pajanan PM_{2.5} (*p-value*=0,003), masa kerja (*p-value*=0,025), dan durasi kerja (*p-value*<0,001) dengan gangguan fungsi paru. Temuan ini menunjukkan bahwa tingginya pajanan PM_{2.5} serta lamanya masa dan durasi kerja berhubungan terhadap risiko gangguan fungsi paru pada penjual bensin eceran. Berdasarkan temuan tersebut, disarankan adanya upaya pengendalian pajanan PM_{2.5} melalui pengaturan durasi kerja serta pemeriksaan fungsi paru secara berkala, terutama pada penjual bensin eceran dengan masa kerja yang lebih lama.

Kata kunci: Gangguan Fungsi Paru, Penjual Bensin Eceran, PM_{2.5}, Spirometri

**ASSOCIATION BETWEEN PM_{2.5} EXPOSURE AND
INDIVIDUAL FACTORS WITH PULMONARY FUNCTION
IMPAIRMENT AMONG INFORMAL GASOLINE RETAILERS
IN BEKASI CITY 2026**

Dinda Annisa Putri Lesmana

Abstract

Air pollution caused by exposure to Particulate Matter 2.5 (PM_{2.5}) can increase the risk of respiratory system disorders, particularly among workers who perform activities in open spaces, such as retail gasoline vendors. According to an IQAir report, Bekasi City was included among the top five cities with the highest PM_{2.5} pollution levels, with an average PM_{2.5} concentration reaching approximately 32.7 µg/m³ in 2025. This study aimed to analyze the relationship between PM_{2.5} exposure and individual factors with impaired lung function among retail gasoline vendors in Bekasi City in 2026. This study used a quantitative method with a cross-sectional study design. The study sample consisted of 102 respondents selected through purposive sampling technique. The instruments used included an Air Quality Monitor (PM_{2.5} measurement), spirometer (lung function measurement), and questionnaires (respondents' characteristics). Data were analyzed using the Chi-Square test. A total of 88.2% of retail gasoline vendors experienced impaired lung function. Significant associations were found between PM_{2.5} exposure (p-value=0.003), length of employment (p-value=0.025), and work duration (p-value<0.001) with impaired lung function. These findings indicate that high PM_{2.5} exposure, longer employment periods, and longer work durations are associated with the risk of impaired lung function among retail gasoline vendors. Based on these findings, efforts to control PM_{2.5} exposure through work duration regulation and routine lung function examinations are recommended, particularly for retail gasoline vendors with longer employment periods.

Keywords: *Lung Function Impairment, PM_{2.5}, Retail Gasoline Vendors, Spirometry.*