

HUBUNGAN PAJANAN PM_{2.5} BERDASARKAN MASA KERJA TERHADAP GANGGUAN FUNGSI PARU PADA PEKERJA BONGKAR MUAT DI PELABUHAN MARUNDA TAHUN 2026

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Abstrak

Penyakit paru obstruktif kronis (PPOK) telah diakui sebagai salah satu faktor utama gangguan fungsi paru dan diperkirakan dialami oleh sekitar 5,8 juta pekerja. Pekerja bongkar muat berisiko mengalami gangguan fungsi paru akibat pajanan PM_{2.5} di lingkungan kerja, sehingga semakin lama masa kerja di lingkungan tersebut semakin besar pajanan kumulatif PM_{2.5} yang diterima. Penelitian ini bertujuan menganalisis hubungan pajanan PM_{2.5} berdasarkan masa kerja terhadap gangguan fungsi paru pada pekerja bongkar muat di Pelabuhan Marunda Tahun 2026. Penelitian menggunakan desain *cross-sectional* dengan 100 pekerja yang dipilih dengan teknik *purposive sampling*. Konsentrasi PM_{2.5} diukur menggunakan DustTrak, fungsi paru menggunakan spirometri, dan karakteristik responden melalui kuesioner. uji *Chi-square* dan regresi logistik digunakan untuk menganalisis data. Hasil penelitian menunjukkan 57% pekerja mengalami gangguan fungsi paru. Analisis bivariat memperlihatkan hubungan signifikan antara masa kerja dan gangguan fungsi paru ($p=0,000$; POR = 4,429; 95%CI:1,880–10,429). Setelah dilakukan pengendalian oleh usia, IMT, status merokok, dan kepatuhan memakai masker, masa kerja tetap memiliki hubungan dengan gangguan fungsi paru ($p=0,034$; POR = 4,248; 95%CI:1,118–16,143). Masa kerja merupakan faktor yang berhubungan dengan gangguan fungsi paru, sehingga pekerja dengan masa kerja lebih lama perlu melakukan pemeriksaan fungsi paru secara berkala dan menggunakan masker secara konsisten.

Kata kunci: PM_{2.5}, masa kerja, gangguan fungsi paru, pekerja bongkar muat. Pelabuhan Marunda

ASSOCIATION BETWEEN PM_{2.5} EXPOSURE BASED ON YEARS OF SERVICE AND IMPAIRED LUNG FUNCTION AMONG STEVEDORES AT MARUNDA PORT IN 2026

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Abstract

Chronic Obstructive Pulmonary Disease (COPD) has been recognized as one of major contributors to impaired lung function and is estimated to affect approximately 5.8 million workers. Stevedores are at risk of developing impaired lung function due to occupational exposure to PM_{2.5}, with longer employment duration resulting in greater cumulative PM_{2.5} exposure. This study aimed to analyze the association between PM_{2.5} exposure based on employment duration and impaired lung function among cargo handling workers at Marunda Port in 2026. A cross-sectional study was employed involving 100 workers selected using purposive sampling. PM_{2.5} concentrations were measured using a DustTrak monitor, lung function was assessed by spirometry, and respondents' characteristics were collected using a questionnaire. Data were analyzed using the Chi-square and logistic regression. The results showed that 57% of workers had impaired lung function. Bivariate analysis demonstrated a significant association between employment duration and impaired lung function ($p = 0.000$; POR = 4.429; 95% CI: 1.880–10.429). After adjustment for age, body mass index, smoking status, and mask use, employment duration remained significantly associated with impaired lung function ($p = 0.034$; POR = 4.248; 95% CI: 1.118–16.143). Workers with longer employment duration should undergo regular pulmonary function examinations and consistently use protective masks.

Keywords: PM_{2.5}, years of service, impaired lung function, stevedores. Marunda Port