

**FAKULTAS KEDOKTERAN DAN ILMU KESEHATAN UNIVERSITAS  
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**“HUBUNGAN KASUS NYERI PENGUNG BAWAH PADA OPERATOR  
ALAT BERAT”**

**ABSTRAK**

**Latar Belakang:** Nyeri punggung bawah (*low back pain/LBP*) merupakan keluhan muskuloskeletal yang sering terjadi pada pekerja dengan postur kerja statis, durasi duduk berkepanjangan, serta paparan getaran seluruh tubuh (*whole body vibration*), seperti pada operator alat berat. Kondisi ini dapat menurunkan produktivitas kerja dan kualitas hidup pekerja.

**Tujuan:** Mengetahui hubungan usia, indeks massa tubuh (IMT), dan masa kerja dengan kejadian nyeri punggung bawah pada operator alat berat di PT. Petrosea Tbk Site VALE IGP Morowali.

**Metode:** Penelitian observasional analitik dengan desain *cross-sectional* dilaksanakan pada Oktober–November 2025. Sampel berjumlah 100 operator alat berat yang dipilih dengan teknik *purposive sampling*. Kejadian LBP diukur menggunakan kuesioner The Pain and Distress Scale dan dikategorikan menjadi tidak berisiko (skor 20–49) dan berisiko (skor 50–80). Data IMT diperoleh dari pengukuran berat dan tinggi badan. Analisis bivariat menggunakan uji Chi-Square dengan  $\alpha = 0,05$ .

**Hasil:** Mayoritas responden berusia <30 tahun (68,0%), memiliki IMT normal (34,0%), dan masa kerja  $\leq 5$  tahun (51,0%). Kejadian LBP kategori berisiko ditemukan pada 7,0% responden. Terdapat hubungan bermakna antara usia dan kejadian LBP ( $p = 0,02$ ), IMT dan kejadian LBP ( $p = 0,004$ ), serta masa kerja dan kejadian LBP ( $p = 0,044$ ). Risiko LBP lebih banyak pada usia  $\geq 30$  tahun (15,6%), IMT obesitas II (42,9%), dan masa kerja >5 tahun (12,2%).

**Kesimpulan:** Usia, IMT, dan masa kerja berhubungan signifikan dengan kejadian nyeri punggung bawah pada operator alat berat di PT. Petrosea Tbk Site VALE IGP Morowali.

**Kata kunci:** Nyeri punggung bawah, *low back pain*, operator alat berat, usia, indeks massa tubuh, masa kerja.

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***“THE RELATIONSHIP BETWEEN CASE OF LOW BACK PAIN IN HEAVY EQUIPMENT OPERATORS”***

**ABSTRACT**

**Background:** Low back pain (LBP) is a common musculoskeletal complaint among workers exposed to static working postures, prolonged sitting, and whole-body vibration, such as heavy equipment operators. This condition may reduce work productivity and quality of life.

**Objective:** To determine the association of age, body mass index (BMI), and length of employment with the occurrence of low back pain among heavy equipment operators at PT. Petrosea Tbk, VALE IGP Morowali Site.

**Methods:** An analytic observational study with a cross-sectional design was conducted in October–November 2025. A total of 100 heavy equipment operators were selected using purposive sampling. LBP was assessed using **The Pain and Distress Scale** and classified as not at risk (score 20–49) and at risk (score 50–80). BMI was calculated from measured body weight and height. Bivariate analysis used the **Chi-square** test with  $\alpha = 0.05$ .

**Results:** Most respondents were aged <30 years (68.0%), had normal BMI (34.0%), and had a length of employment  $\leq 5$  years (51.0%). At-risk LBP was found in 7.0% of respondents. There were significant associations between age and LBP ( $p = 0.02$ ), BMI and LBP ( $p = 0.004$ ), and length of employment and LBP ( $p = 0.044$ ). LBP risk was more frequent among those aged  $\geq 30$  years (15.6%), with BMI in the obesity class II category (42.9%), and with length of employment >5 years (12.2%).

**Conclusion:** Age, BMI, and length of employment were significantly associated with low back pain among heavy equipment operators at PT. Petrosea Tbk, VALE IGP Morowali Site.

**Keywords:** Low back pain, heavy equipment operators, age, body mass index, length of employment.